Meet Kenneth D. Nichols, the Father of Oak Ridge - Delivery to Los Alamos

(As published in The Oak Ridger's Historically Speaking column the week of June 16, 2025)

Barbara Scollin, grandniece of Major General Kenneth D. Nichols, continues her series on his life.

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Ample reasons, most notably leadership skills, personality traits and qualifications, led to choosing General (then Colonel) Kenneth D. Nichols as Deputy District Engineer and subsequently as District Engineer of the Manhattan Engineer District (MED). In this capacity he had supervision of the research and development connected with, and the design, construction and operation of all plants required for the production of plutonium and uranium-235, including the construction of the towns of Oak Ridge, Tennessee, and Richland, Washington.

The responsibility of his position was massive as he oversaw a workforce of both military and civilian personnel of approximately 125,000; his Oak Ridge office became the center of the wartime atomic energy's activities. He also was responsible for internal security operations in the production facilities that helped keep the development of the atomic bomb secret.

In this seventeenth installment of several articles covering the life and accomplishments of Kenneth D. Nichols, we learn of his Los Alamos responsibilities as well as Clinton Engineer Works (CEW) and Hanford Engineer Works' (HEW) production efforts delivered to Los Alamos.

In the autumn of 1942, Colonel Kenneth D. Nichols remembers, "Some of the key scientists greatly underestimated the time and effort that would be required to develop the weapon. They saw no urgency in starting because they thought it could be done in a few months with less than a hundred men." But Colonel James C. Marshall, Nichols and Brig General Groves knew early planning was critical to success.

By October 1942, Colonel James Marshall initiated search for a suitable bomb laboratory site. Capt. John Dudley surveyed sites, many times on horseback, with unique specifications: 200 miles inland, a sparsely settled area with mild climate, a natural bowl surrounded by hills for an ultimate population of 450 people, including children and guards. Dudley settled on Jemez Springs in NM, but Dr. J. Robert Oppenheimer did not approve of the site.

Nichols indicates that Oppenheimer offered the Los Alamos Ranch School as an alternate site. Marshall recalled Dobie Keith (of Kellex) had a son attending the school and told Marshall, "Well if you're looking for a place that's where nobody will bother you, go look at the school they call Los Alamos." Groves and Marshall agreed to buy the school and President Roosevelt signed off. Marshall recalled, "Well, it was on a mesa quite high, about 8,000 feet high, several thousand feet higher than Santa Fe. . . . We bought the whole school, the horses, the canoes, the skis, the tennis ranges, everything." A total of almost 46,000 acres were purchased that included the school.

Construction of Los Alamos primarily was handled by Groves and the Santa Fe/Albuquerque District Area Engineer.

Nichols recalls, "I did not follow too closely the construction. … The difficulties of construction at Los Alamos were the high cost of transferring all materials and labor on to the base of the mountain, a long distance; lack of water; and getting the roads built. … We never had enough in the line of facilities to satisfy the technical personnel. We couldn't possibly get enough done in time.

"While I was at Los Alamos, several scientists attempted to start a discussion with me about the housing or other living conditions at the laboratory. I had a set comment: 'That is Groves' problem, not mine.'"

And Jackie Nichols recalled, "On a brief visit to Los Alamos I met Oppie's wife, Kitty. In contrast to Oak Ridge, their living conditions were startling. While having tea with some of the wives I heard murmurs of

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discontent. "It's so dry out here the laundry is ready to take down from the clothesline before I get it all hung up.' 'My hair is like dry straw.' 'My face is drying up in ridges and wrinkles.' I mused what to report to my Oak Ridge neighbors who dried the children's snowsuits in the furnace room before scraping off the mud?"

Unlike the other major Manhattan Project facilities CEW & HEW, Nichols did not have overall administration of the Los Alamos Laboratory or secret city. However, Nichols handled the administration and auditing of contracts involving Los Alamos. Most notable was the University of California contract for employing scientists, including Oppenheimer, and procuring of materials. The MED was to provide support as needed or requested by Groves. But most critical to the project as far as Nichols was concerned, was his coordination with Oppenheimer.

Nichols said, "In the case of Los Alamos, Groves made it clear that he personally would do all the direct supervision of the work. However, he indicated that I should keep myself informed by visiting Los Alamos or by meeting with Oppenheimer elsewhere concerning progress and coordinating technical specifications for U-235 and plutonium.

"In addition, I was to work out with Oppenheimer the means to determine the percent of enrichment of U-235 that would be optimum compromise between possible production rates, which was my responsibility, and bomb efficiency, which was Oppenheimer's field.

"From my point of view, I was anxious to ascertain if both U-235 and plutonium could be used in a fission bomb. Next, I needed to know the specifications and how much of each material would be needed for a useful weapon. This information was needed to determine the rate of production required from our plants."

Nichols and Oppenheimer worked closely on the moving targets of uranium and plutonium specifics. Nichols visited Los Alamos approximately every three months to be updated (only once with Groves in March 1943). Groves visited Los Alamos approximately every two weeks. "Most of my meetings with Oppenheimer took place at Oak Ridge, Berkeley, New York, Chicago or Washington when problems arose," remembered Nichols. And, "I kept generally informed about progress at Los Alamos because I realized that if it failed in its mission, all our production efforts would be of little military value and the Manhattan Project would be a failure."

By the middle of 1943, Oppenheimer tripled the estimated amount of U-235 needed. Nichols recalled, "…we first learned that we needed to increase the quantity of U-235 needed for a gun-type weapon. Next we learned that the gun-type weapon was not suitable for the use of plutonium. As a result of this we embarked on a major expansion of the effort at Los Alamos to develop the implosion weapon. The time for the successful delivery of an implosion-type atomic bomb now depended on the time required to develop and test the implosion principal.

"We had to reorganize and expand Los Alamos to start on the implosion method. Could we do it and could we do it in time. For such decisions we assembled the proper people at Chicago and decided what to do, and the decision was made immediately to proceed on a new course.

"Late in 1944, I felt we probably would produce both of the two types of bombs about August 1, 1945. Each project had its difficulties, and success for each remained about a 50-50 proposition. Faint hearts and pessimists had no place in the Manhattan Project."

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Small shipments of plutonium and uranium for testing were shipped to Los Alamos from HEW and CEW early in 1945. By February full-scale plutonium shipments twice a week to Los Alamos from HEW were handled by Lt Colonel Franklin Matthias, Deputy District Engineer under Nichols.

As to the U-235, Nichols recalled, "In the first months of 1945, the enrichment of the U-235 produced remained well below the required weapon strength. Nevertheless, as soon as enriched uranium tetrachloride was produced, it was shipped to Los Alamos for experimental use. [Lt Colonel A.V.] Peterson informs me, 'One shipment of enriched material to Los Alamos was carried in your B-25 by Pete Young. I accompanied it. I've forgotten the amount and how much it weighed, but it was substantial.'

"To transport other shipments we utilized armed couriers traveling by train. The material was contained in special hand-carried luggage, and the courier remained as inconspicuous as possible. As time went on, this simple method of shipping in a suitcase the entire output of what was fast becoming the largest construction project in history led to a local rumor that the secret CEW project must be a failure or a boondoggle. Many of the local [Oak Ridge] residents and workers observed that thousands of railroad cars were carrying supplies into the CEW but no one had ever seen anything shipped out."

Nichols' visit to Los Alamos on May 1, 1945, gave him an opportunity to discuss problems the scientists were encountering to develop an implosion weapon. He recalls, "I now realized more fully from the firsthand briefing that we in the production field were not the only ones surmounting difficult obstacles."

Three days after Nichols' visit to Los Alamos, he received the plutonium purity specifications from the Met Lab. Early July was forecast for testing of the plutonium bomb. Early July was also critical as President Truman would be at the Potsdam Conference where final decisions for the invasion of Japan and the use of atomic weapons would be made. Groves needed a firm date for the last shipment to Los Alamos of U-235 needed for the atomic bomb to inform Chief of Staff General Marshall and Secretary of War Stimson. Groves warned, "You had better be right Nichols."

Nichols met with Tennessee Eastman officials in charge of the Y-12 plant and told them to "literally scrape the bottom of the barrel to advance the date ahead of normal production procedures."

Still classified today, the critical mass needed for weapons was closely guarded information during the war. Nichols recalled, "Probably the complete production rate for all plants [were only known by Lt Colonel] A.V. Peterson, my brother-in-law, Groves, Farrell, Oppenheimer and myself. He [Roosevelt] knew the original production objectives: about how many kilograms of 235 we would produce and how many kilograms of plutonium we would produce. Truman, I don't know. . . . We can't find any reference to where Groves ever briefed him."

The final material for the Hiroshima bomb was shipped late in July. Nichols recalled, "The CEW had completed its initial assignment ahead of schedule. Now it was up to Los Alamos and the 509th Composite Group."

Next up: The Road to Trinity

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Atomic Men Dr. J. Robert Oppenheimer points to a picture of the atomic bomb explosion over Nagasaki,Japan, as Dr. Henry D. Smyth (second left), Brig General Kenneth D. Nichols (second right), and Dr. Glenn Seaborg look on. American Chemical Society Exhibit on atomic energy, Grand Central Palace, 1946. Public Domain (Courtesy of Barbara Scollin)

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Technical Area at Los Alamos built around Ashley Pond Public Domain (Courtesy of Barbara Scollin)

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Improved Santa Fe-Los Alamos Road, ascending to the Pajarito Plateau from the Rio Grande valley. Public Domain (Courtesy of Barbara Scollin)