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Oak Ridge Form 5: Oral History, Deed of Gift Release for Interviewee

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K-25 ORAL HISTORY PROJECT
U.S DEPARTMENT OF ENERGY'S ORAL HISTORY PROGRAM

I, Hank Stoner *(Name of interviewee)* residing at 110 Blue Ridge Court *(Address of interviewee)* do hereby permanently give, convey and assign to the United States Department of Energy (DOE) my interviews *(or oral memoirs)*, and the recordings, tapes *(audio and or video)*, and any transcripts of my interviews conducted on 3/10/05 *(date)* at 104 Ina Lane #113 *(location)*.

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Signature of Interviewer: [signature]
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National Educational Technology Solutions LLC

K-25 Oral History Interview

Date: 3/10/05

Interviewee: Henry Stoner

Interviewer: Bart Callan

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[1:00:07]

Callan, B.: So, we'll start out with the easy question here and just go ahead and state your name for me and spell your name so that we have that preserved on the camera.

Stoner, H.: My name is Henry Herb Stoner. H-E-N-R-Y (H-E-R-B) S-T-O-N-E-R.

Callan, B.: Okay, and how old are you and when were you born?

Stoner, H.: I am 84 years of age going well into almost 85. I was born on the third of October in 1920.

Callan, B.: Great. Where were you born? And you can expand upon your background, where you came from.

Stoner, H.: I was born in a town called Hazleton, Pennsylvania. That's H-A-Z-L-E-T-O-N. Uh --

Callan, B.: [Laughs]

Stoner, H.: As a very small child, under a year of age, I was moved with my parents, of course, to Pottsville, Pennsylvania where I spent all of my early education on through high school, graduating from the Pottsville High School in 1938.

[1:02:46]

Callan, B.: Okay. And after you graduated high school? After you graduated high school what happened?

Stoner, H.: After graduating from high school I went to what was called Penn State -- oh what did they call that? I'm sorry I can't -- extension school. Penn State Extension School, which gave me the opportunity to take my first two college years in my hometown, Pottsville, and then the later two years of college for my BA degree in chemical engineering I went to the Penn State Campus.

Callan, B.: Okay. And after you graduated from college, what type of work did you do prior to coming to work at K-25?

Stoner, H.: Directly out of college I went to work at what was called the Mellon Institute of Industrial Research in Pittsburgh, Pennsylvania. It is now called Carnegie Mellon. And from there I was actually drafted into the Navy, but upon leaving the Mellon Institute, the

then director, Dr. Wideline told me that I should immediately apply to the Carbide and Carbon chemicals company for employment because he was well aware of the Manhattan Project. He could not, because of classification, tell me what it was, but he had said that people with the type of engineering education that I had were needed in this special project. So, I applied at the Carbide and carbon chemicals company in New York and, to make a long story short, they immediately contacted me and I went to New York and they put me to work at the Columbia University on the Manhattan Project.

[1:05:18]

Callan, B.: Okay, and you were at Columbia University for a while and -- how did you come to work at K-25?

Stoner, H.: Well, at Columbia University I spent about six months doing research on barrier, which I later, many years later, became involved in its manufacture. But, after six months there was, available in Oak Ridge, residence and I was then transferred to Oak Ridge in October of 1944.

[1:06:14]

Callan, B.: When you first arrived down here in Oak Ridge, what were your first thoughts? What did you first think about this place?

Stoner, H.: [Laughs]. Um, well, when I got off the train, I looked around in Knoxville and saw all of the dirt and soot from coal and I sent a, what was then a, um, telegram to my wife saying it looks like Pittsburgh. And, so I came on to work here and spent a month working and living in a dormitory until I could get a residence in an E-1 apartment where my wife joined me in November of 1944.

Callan, B.: Okay. And what was the total span of your career at the K-25 site? You started in 1944 and how many years did you work there?

Stoner, H.: I started to work there in K-25 in October of 1944 and continued working there some of the time in the startup of the gaseous diffusion plant and, in later years, in the design, construction, and ultimately operation of the barrier facility, in which I was

employed until 1958 at which time I transferred to the Y-12 facility.

[1:08:04]

Callan, B.: So, pretty long career here. [knock on door] Yes?

[crew talk]

Callan, B.: Let's see. So you got out here to K-25 really when it was still under its construction, and what was your first impressions when you saw that? What was the atmosphere like during the construction?

Stoner, H.: Well, actually my first assignment, which lasted only about a month, was to teach school in the Wheat School building. There were a lot of people being trained for operators that needed refreshment in just ordinary arithmetic, adding, subtracting, dividing, and so forth. And that lasted about a month and then I went into the operations and it was absolutely amazing the size of the building that was being contracted. It was still under construction. And, uh, we who had operation assignment were to follow the construction and learn what the gaseous diffusion plant was all about.

[1:09:49]

It was an absolutely amazing sight to see how rapidly this construction was going on. Actually, it was being built around the clock, 24 hours a day, seven days a week. It was mind-boggling, really. When you would go home at night and come back the next day and the building had moved, so it seemed, particularly when they were setting up the constructions, the structural steel. It just was just mind-boggling, really. That's how rapidly that building was growing.

Callan, B.: It seems amazing to me that there was just -- I guess to get that thing done in such a short period of time there had to be tons of independent contractors out there and for everybody to be doing this little piece or one independent contractor working over here and another one working over here and they were kind of able to get everything together and relatively accurate -- to get that thing together so well. Did you have any observations related to that?

[1:11:09]

Stoner, H.: Oh, it was without a doubt the major engineering feat of all times. The way all the people could work together and accomplish the building of a process that had no predecessor; no pilot plant. It was just -- went into full construction. Fortunately, they were able to draw on the best engineering and, and scientific minds that were available and there was, of course, a national will to get things accomplished and so people worked extraordinarily long hours. We worked seven days a week and usually, I know my own experience, I rarely worked less than 12 hours a day. And sometimes we'd come to work and not return for 32 hours. But, there was a war and there was a national will and desire to get things accomplished and it was -- well, looking back on it, it was just a marvelous and thrilling experience.

Callan, B.: Okay, where did you live when you were working at K-25 and how did you get to and from work?

[1:12:52]

Stoner, H.: Uh, I lived, initially, as I think I mentioned, in an E-1 apartment on Florida Avenue. And the means of getting to work; very, very few people had automobiles. They weren't even being constructed at this particular time, you couldn't buy a new automobile. So, we had bus transportation to a central terminal. At the central terminal we got on what we called cattle wagons. Actually, they were 18 wheeler trucks that had a door cut in them and benches built along each side. They were what we rode to work. All of use carrying our lunch buckets. The, uh -- and then at the end of the day and frequently, not just at the end of the day, frequently there was transportation back into Oak Ridge.

Callan, B.: Okay.

Stoner, H.: At that particular time, by the way, there was a whole colony called a wheat colony that was primarily construction works and it was --

Callan, B.: I was just going to ask you about that. So yeah, tell me more about the wheat community and --

[1:14:32]

Stoner, H.: Well, I know very --

Callan, B.: -- valley or --

Stoner, H.: I know very little about it because it was a separate community, primarily construction workers living [clears throat] -- excuse me -- in rather primitive almost conditions, but they had bowling alleys and movie theaters and every thing that were going around the clock because construction was on shifts going around the clock. So, the community was like Las Vegas - it never went to bed. But, I know very little about it other than just traveling through it on the way to work at K-25. It was really fantastic.

Callan, B.: What did it consist of? Was it tents?

Stoner, H.: No, no. It was a little more than tents. It was primarily trailer type of construction. They could be easily moved in onto the site and provided rather primitive but living conditions for the construction workers. As I say, for recreation, they had bowling alleys and movies that were going around the clock.

[1:16:06]

Callan, B.: Okay. If people inquire, like if someone were to ask you what kind of work was done here, how would you describe it?

Stoner, H.: Well, the, uh, the construction was typical kind of work that you would see in most any building of structural steel and concrete being poured and the thing that was unique about it, however, was the tremendous amount of piping and the, uh, large number of motors and centrifugal pumps that were being installed. That was the thing that was unique -- the building itself was regular structured steel and the outside was, I don't -- I can't bring to mind what the material was, but it was an asbestos containing material that covered the outside. But people weren't concerned about it at that time. The, uh, the very size, of course, was unique. It was approximately five stories high and the building, when finally completed, the U was approximately one mile from one end of the U around to the other end. To move about in the building, you know, on the operating floor we rode bicycles because of the distance one had to travel.

[1:18:08]

Callan, B.: Did you meet any famous people or famous scientists while you were working out here like Einstein or Oppenheimer or any folks like that?

Stoner, H.: No, I, I did not meet any of them in the sense that I shook hands with them. I, uh, was in a, uh, group that saw General Groves and one time Fermi at a distance, but no, I never had the privilege of first hand meeting or conversation.

Callan, B.: People talk about the Roosevelt Cell, and I understand there was also a Groves Cell. Did you want to talk about those?

Stoner, H.: I'm afraid I don't know anything about a Groves Cell. There was a cell that I am familiar with that was called the Roosevelt Cell--

Callan, B.: Okay, we'll talk about the Roosevelt.

[1:19:24]

Stoner, H.: -- and, uh, and really what it was was just a regular cell, which consists of about six convertors, that was set up and prepared and everything polished and shined up for a visit from President Roosevelt, which I don't think ever took place. But yes, I was familiar. I've seen it. I was not directly involved with its preparation, but it was being prepared in a building just very close to where my work assignment was.

Callan, B.: Okay. [coughs]. What are some of your most vivid recollections of the time that you spent at Oak Ridge and K-25? Some of your favorite memories of working here, living here.

Stoner, H.: Well, I guess my -- are you asking me about the actual work memories or are you also including memories of the town and the people?

Callan, B.: Let's do both. Let's talk about work memories first and some of your favorite memories of working at K-25. I'll rephrase it and then we'll talk about some of your favorite overall memories and your fondest memories of being here at Oak Ridge.

[1:20:54]

Stoner, H.: Well, I guess, I guess my very, very first memories that were just of long hours working, trying to understand the workings of the process and why some things wouldn't work for example, the centrifugal pumps at first did not work satisfactorily. And I spent many hours just sitting beside the pumps and watching them to try to determine why the pumps would fail. And they usually failed when they were being shut down. Finally, they decided that, that the pumps had to be remachined to provide a little bit greater clearance between the rotating members and the stationary members in order to make them work properly. When shutting down, the pump lost its magnetic center and the impellers would move back and forth and there was not enough clearance and they would -- the rotating part would hit the stationary parts and make them tear up. Some of my memories are just sitting for hours watching those pumps to see what made them self-destruct.

[1:22:54]

Then, other memories that you look back upon somewhat with amusement; the construction workers had classified blueprints and those of us in the operating aspects of the operating departments, uh, did not, were not permitted access to the drawings initially. Yet, we were supposed to learn and understand how to operate without having the appropriate clearance to look at the drawings. That, fortunately, was rectified after a while, but when you would walk into a cell that was being constructed, one of the construction workers would look at you and if you didn't have the right kind of badge, he'd cover up the drawings so you couldn't look at the drawings.

Another memory, of course, that we look back on with some amusement was that, uh, they had coded words and coded numbers so that simple materials such was common to everybody like nitrogen had a code. And initially we weren't privy to what the codes meant. So, those are some of the memories and, of course, the fascination with how fast the construction was going was another memory that I look back on rather fondly.

[1:24:55]

Also, as the building was growing, the people working there was growing rapidly. And many of the people that were working with us initially were in the military. And it made no difference what your military classification was. The important thing was your technical background. So you found situations where a sergeant

would be working for a private. And, uh, that, I'm sure, sometimes didn't go over too well, but they had to take advantage of the expertise that was available and the military classification was just set aside. So, we had civilians and military people working side by side. And military people went back to their military barracks and those that, such as myself, that were more fortunate, went home to their homes. I might say as an aside, I came to Oak Ridge not in uniform but being very aware -- very much aware of the fact that if I did not go I would be put in uniform and sent. So, I felt very fortunate that I had the good fortune of being sent here somewhat as a civilian and able to have my wife with me. We had no children at the time.

[1:27:03]

Callan, B.: You mentioned the military being out here and I'm just curious, what sort of job role did the military personnel serve? Did they do similar type work or was it construction type work, what was it that military personnel did?

Stoner, H.: Most of the military people were in the, what I could call and what we did call a production work. They were operating the gaseous diffusion plants or buildings. Um, initially they were -- you couldn't tell a civilian from a military in the kind of assignment they had. It was primarily following the construction and then starting up the buildings. That was just really very much in the early period. I don't know exactly when the military people pulled out, but they had to get people here to do the job. They couldn't get enough civilians and they put military people. They were army and navy. And the work assignment, as I said and I'm repeating, I realize, it was not governed by their rank in the military.

[1:28:35]

Callan, B.: Okay. I have to have him change tapes real quick. These things only run 30 minutes so --

[End of Tape 1, Begin Tape 2]

[2:00:07]

Callan, B.: Okay. Let's talk a little bit about the working conditions and the work environment. You've given me a little bit of background about how you came to work at K-25 and obviously there were

background checks that were conducted on you prior to you coming down here. Were you aware of any of these background checks being conducted on you?

Stoner, H.: Oh, I was very much aware of background checks because I would hear from family and relatives that officials would contact to investigate me and also my wife. So, yes, we were very much aware of -- that we were being investigated for security clearance.

[2:01:31]

Callan, B.: Okay. And my understanding is that Oak Ridge and K-25, they were secret facilities. It was sort of like a gated place. Were you able to come and go in and out of Oak Ridge and K-25 as you pleased? What was the security environment like?

Stoner, H.: Well, there was a fence, of course, around the whole town. There were guards at various posts leaving the town. And you could not come and go frequently -- or, uh, freely. We were all badged, even as we moved around the town. We wore badges and in order to go to Knoxville, for example, we had to be -- receive clearance to go and to return. And our family could not come to visit without us making special preparations. We had to make application and we had to meet the family at the guard stations, be examined, and then take them on into our living quarters. There were a lot of jokes about that, of course, that mother-in-law couldn't come visit unless she was initially approved. And another thing, there was a great deal of resentment -- well, first of all, curiosity in the surrounding communities about what is going on in Oak Ridge.

[2:03:30]

Initially we were not felt -- we were not very welcome. I know that we would sometimes go to Knoxville to shop and we would remove our badge so that people in Knoxville did not see the badge because sometimes they wouldn't wait on us. Of course then it didn't take long until -- when they heard us speak that they knew that we weren't Knoxvillians. So, the resentment was frequently shown. And, of course, that's understandable.

Callan, B.: What type of perceptions did they have about what was going on out there at K-25 --

Stoner, H.: Well -- [laughs]

Callan, B.: -- or Oak Ridge? What were their perceptions of what's going on. I'm sure people, the locals around here saw vehicles going in and out and supplies coming in and out. Anything you heard about what they thought was going on?

[2:04:37]

Stoner, H.: Well, um, I'm sure there was a great deal of curiosity because there was so much activity here. Inside of a year, a year and a half, seventy thousand people here were where there had been essentially no people other than a few remote farms. There was so much activity. Naturally there was a great deal of curiosity and there was some of the old north/south resentment. I know that initially I was called a damn Yankee a few times. But, with time that resentment wore off. I, I didn't experience anything that was , was troublesome other than noting resentment.

Callan, B.: Okay. When you were traveling to Knoxville, you'd talk to somebody in Knoxville, for example, and they asked you what you did up there, what did you tell them?

Stoner, H.: Um, generally, uh, my response was "I'm very sorry, but the work is classified and I may not discuss it."

Callan, B.: Okay.

Stoner, H.: That was usually my response.

[2:06:25]

Callan, B.: And that must have been an interesting environment in general, working around classified information. I guess when you were on site at K-25, how did people communicate? Were they able to communicate pretty freely among each other while you were on the job?

Stoner, H.: Um, no. The communication was very much departmentalized. You communicated with the people that you worked with. With them you knew what could be discussed. Um, for example, uh, I had little communication with the people at the Y-12 plant. Their work was different and while I knew many of them in the town, we did not discuss our work. So, it was quite departmentalized. You knew who you could communicate with. And there was concern all the time about what is classified and how you treat things that are classified. I think the tendency might have been to, to, to feel

quite restricted by classification and concern about whether or not you could say certain things. And so the tendency was to say nothing.

[2:08:08]

Callan, B.: How did that work with your home life? Was there ever any tension or anything that got created out of that?

Stoner, H.: Not tensions. Not tensions at all, but, but my wife did not know what I was doing and I was not free to tell her. And, she understood that and that caused no problem. But one of my greatest regrets was that my children did not know what I was doing. So far as they were concerned, daddy went to work in the morning and he came home at night. And that was it. And in the very early days of my first child, lots of times I didn't come home at night. I stayed at the plant for 24 or 32 hours. And so I had regretted that they were not able to know what was going on and what their father did. I, um, I felt that I would like to take them and show them what I was doing because I was proud of what I was doing.

Callan, B.: I can understand that. How did they reflect on -- how do they feel about -- how do they feel now about the work that you did? You had an opportunity to talk to them about what you contributed out here?

[2:09:49]

Stoner, H.: Um, not, not in any detail, but I, of course, have been able to tell them somewhat of what I did and some of the things I did. In fact, just last Saturday I took one of my daughters and her husband out to the overlook at K-25 just to show them what you could of the facility and I described some of the work that I did in the startup of the gaseous diffusion plant and later in the manufacture of, of barrier. Now she's in her fifties.

[laughter]

Callan, B.: So, she pretty impressed by it? Had she ever seen the building before then?

Stoner, H.: Uh, not as close as we were able to see it this time and it was the first time for her husband.

Callan, B.: It's an impressive building. I was --

Stoner, H.: Yes.

[2:10:59]

Callan, B.: -- awestruck the first time I came out here because before -- back in October, the first time we came out here, I had no idea what gaseous diffusion or K-25 or any of this was and it's really -- it's been an amazing experience. What were your coworkers like? Did everybody -- I think you said that they did -- did everybody pull their weight and everybody cooperated pretty well together and work well together?

Stoner, H.: Well, in the sense that there was little conflict, yes, but like any group of people, some pulled more than their weight and others didn't. And it was interesting to see that those that were not willing to put in the long hours that were required at the time were the first ones to disappear. [laughs].

Callan, B.: Interesting.

Stoner, H.: But, um, there were many, many wonderful friendships made. The people, of course, came from all over. We had to, we had to find our friends among new people that came to work and those friendships have lasted long and many of us have stayed on here in Oak Ridge. We love Oak Ridge. And I've now been here for about 60 years and I intend to stay here. I like Oak Ridge. I think it's a marvelous community and has many, many benefits and many wonderful memories.

[2:13:04]

Callan, B.: Okay. Initially, what kind of health facilities were available to you at K-25?

Stoner, H.: What kind of --

Callan, B.: Health facilities. Did they have hospitals?

Stoner, H.: Oh, well, at K-25 itself there was what we called a dispensary and we had frequent health checks for all kinds of things; hearing and all various blood tests and so on that were run at least annually.

And they had doctors on there day and night. And that was excellent. And then the healthcare in the community was top notch. They brought in very fine doctors from John Hopkins and various places so the healthcare both in the workplace and in town was very, very good.

[2:14:17]

Initially, the doctors that we had were not necessarily assigned to us. We took the doctor that was available on call when you needed medial care. But, they were extremely competent doctors. And many of them were still in uniform while practicing medicine here.

Callan, B.: Okay. Got away and kind of shift here --- we'll talk a bit -- I've got a few questions specific to the Manhattan Project and during the Manhattan Project era when you were initially down here and K-25 was beginning its operation, what was your understanding of the function of the K-25 facility during that time? Did you pretty much know what it was that you were doing and what it was going to be used for?

Stoner, H.: Uh, I, I got my initial understanding, and it wasn't necessarily real clear right at the moment, but while I was still working on the Manhattan Project on Columbia University, I began to have my first insight as to what was going on. I knew at the time that the Manhattan Project goal was to produce a nuclear weapon. That was sort of passed around among the technical people, sort of behind the hand type of whisper. And because of the technical training that I had in physics, I could understand in a very rudimentary manner that there was possibly a tremendous amount of energy available in [clears throat] -- excuse me -- that could be released from uranium 235. So far as what such a device would look like and so forth, of course, I had, I had no idea.

[2:16:57]

Callan, B.: Okay. What was your reaction to August 6th, 1945, the day the bomb was dropped? What was it like?

Stoner, H.: It was a sense of great relief. I was awaiting with great anxiety when this was going to happen because I was well aware when the first uranium hexafluoride that was partially enriched was withdrawn from the gaseous diffusion cascade. And, of course, it was then taken to the Y-12 facility for further enrichment and the time, and I can't remember exactly when the timing, but it seemed

like it was in May or June or something like that when the materials were withdrawn from the cascade and 'til August 6th seemed like an awful long time. Obviously it was not very long, but the anxiety -- we knew that there was going to be an atomic bomb and what was to be done with it, of course, we didn't know until we heard of the August 6th event.

[2:18:41]

Callan, B.: And was the overall atmosphere like? Just all over the facility when that happened?

Stoner, H.: Oh, well, well, here in Oak Ridge and in surrounding communities was one of great excitement and celebration and it was the first time, of course, the people outside of the community and most of the people in the community knew what was going on. Those that were, of course, that were in upper management or those that had the technical know how, they knew what was going on, but there were so many people -- the families and so on in Oak Ridge had no idea. And there are, of course, many anecdotes now as to what was being said outside about what was going on here and I guess you heard many of those in your interviews.

[2:19:48]

Callan, B.: I actually -- I haven't heard a lot. I would like to hear more. So if you could think of any, I would be interested to hear them.

Stoner, H.: Well, it's, it's, at the moment [laughs] at the moment it, it doesn't [laughs] -- I'm sorry. I can't bring one to mind right now either.

Callan, B.: That's okay, but if one pops into your head later just let me know. How do you think that history should view the Manhattan Project and its outcome?

Stoner, H.: Well, I think history has to acclaim it as indeed the greatest technical engineering feat that has ever been accomplished. When you consider how, uh, there was nothing here was farmland and they put in the city infrastructure for water and sewage and homes, living facilities, maybe I shouldn't call them all homes, but living facilities for 70,000 people and to accomplish it in a year's time. I can't recall actual dates and times, but in my memory the K-25 facility, that whole mile long U was accomplished, I believe, in less than a year. Uh, it just blows your mind even today to think about it. And, um, all of the living quarters -- I know that I witnessed the

town being built where you could see bulldozers just bulldozing a road up the side of the ridge and houses going up following the bulldozer. And in a few days or a week's time you'd come and see houses where there had never been houses. Building many, and I don't remember, but it seems to me they were building as many as 20 to 30 houses a day. Feats of this kind are just remarkable and have never been before or since -- anything like it.

[2:22:51]

Callan, B.: That was a beautiful answer. Thank you. Let's talk about after the Manhattan Project now. After the Manhattan Project there was a transitional period and then K-25 started up the expansion program. Can you explain the expansion program and when that began?

[2:23:12]

Stoner, H.: I don't recall exactly when it began, but my work was very much involved in the expansion program. The initial K-25, the barriers that were used there, turned out to be somewhat inefficient and we learned later how to make more efficient barrier. That allowed for more effectively or having a more effective process for the separation of the uranium isotopes. And in 1946 -- [clears throat] excuse me [clears throat] -- I was sent to Buffalo, New York to witness a new process for manufacture of barrier. Excuse me. I'm gonna have to stop.

Callan, B.: That's fine.

Telling them the way that you're telling them is just really good. I'm really enjoying this interview.

Stoner, H.: Okay.

Callan, B.: I think if we continued on, where were we?

[2:24:32]

Stoner, H.: I was, I was talking about [clears throat] --

Callan, B.: The expansion program.

Stoner, H.: -- about the expansion program --

Callan, B.: Right.

Stoner, H.: -- and my participation in it. In 1946 I was sent to Buffalo, New York to witness a new process for the manufacture of barrier. It had been developed by the Linde Corporation. And it was a barrier that promised to make the gaseous diffusion process a great deal more efficient. And, of course, gaining efficiency with a process such as the diffusion process uses so much electrical energy resulted in a great deal of decrease in cost. And so you could afford to take a new type of barrier and put it into the plant, the gaseous diffusion plant. And so that was the start of the expansion program. After observing and learning how that process was done, I hired three young engineers that were working in its development and they came to Oak Ridge. And then about 1947 we started to build a facility for manufacture of a different type of barrier.

[2:26:28]

And that facility was started in its operation, I believe, in 1948. And from 1948 on to many years on into the sixties anyway barrier was being manufactured and the K-25 building was completely redone with new barrier. Other plants were built such as K-29, K-31, K-33; the Paducah, Kentucky plant, the Portsmouth, Ohio, plant. And for all of those the barrier was manufactured by this process -- new barrier facility in Oak Ridge. Of course, during its operation it was greatly improved also. The manufacturing processes were greatly improved more effective than the ones wrought from the Linde Facility in Buffalo. And I worked -- I guess one of the most exciting and one of the things I'm most proud of in my own experience is that I had the opportunity to be very active and very much a part of design and construction and ultimately the operation of the barrier facility so it felt like it was mine. It was something that I had done and something I was very proud of.

[2:28:33]

In 1958 it was operating and it probably had in the neighborhood of 350 to 400 employees. In later years it became even larger, but at that -- in 1958 I had transferred to the Y-12 facility.

Callan, B.: Okay. And --

[crew talk]

INTERVIEWER: Yeah, let's go ahead and switch tapes.

[End of tape 2, Begin Tape 3]

[3:00:09]

Stoner, H.: And during the Cold War what we were trying to do was make more weapons than Russia, essentially, and so --

Callan, B.: Actually, I'm going to have you redo that analogy for me. Hate to make you repeat yourself, but that's -- I mean that's a very good, simplified way of putting what the mission and job of the facility was. Can I have you restate that again now that we're rolling?

[3:00:44]

Stoner, H.: Oh sure.

Callan, B.: Okay. We're running. Go ahead.

Stoner, H.: Well, you ask what the mission of the expansion program was and what was the goal of providing more and more gaseous diffusion process. During the Cold War the really purpose of the gaseous diffusion plant was just what it was initially and that is producing uranium 235, but during the Cold War we were trying to build more nuclear weapons than the Russians and so we built more and more plants to produce more and more uranium 235 or more and more fuel, if you will, for atomic weapons. So, the gaseous diffusion expansion program was just to make weapons faster than -- was the initial purpose.

Callan, B.: Perfect. Thank you. Was that the uranium that was enriched coming out of K-25 -- was it only used for weapons or was there other reasons why they were doing enrichment there? As far as the --

[3:02:12]

Stoner, H.: No. They, uh, -- as we started building nuclear facilities for the generation of electricity, we were also enriching uranium or separating uranium 235 from 238 to obtain low enrichment uranium for a generation of electricity. So, the gaseous diffusion plant then had a duel purpose. One was to produce highly enriched uranium 235 for weapons and partially enriched uranium 235, like 3 or 4 percent, for the generation of electricity. It had those two purposes. And also, I might add, highly enriched uranium 235 for fueling the naval vessels.

Callan, B.: Okay. Let's see. How many different -- did you pretty much hold the same types of jobs throughout your career at K-25 or did you have different job titles throughout your time?

Stoner, H.: Yes. I had different titles. When I initially came here I don't remember what my job title was, but it was something like lab technician or something like that, which was just a job title for pay grade. And it might be rather startling to know that that initial pay grade was 120 dollars a month. And, of course, then with time --

[3:04:34]

One of the things I look back on rather amusingly -- the initial job title of lab technician was a weekly pay title and so you got overtime. And so we were working such tremendously long hours and, as I said earlier, seven days a week, I began to have pretty good pay, getting time and a half for the extra time. And I remember that when one time my supervisor and his name I remember so well. He was just a wonderful, wonderful man. Joe Marshall. Joe Marshall came to me and said, "We're gonna give you a promotion. You're going to a monthly salary." And then he grins and he says, "Of course, you don't get overtime [laughs] with salary."

Callan, B.: So it was actually --

Stoner, H.: So, so actually the promotion resulted in less pay. But naturally, over years, you get various job titles and I think as the head of the barrier facility, my job title was Department Manager or -- yes, I guess that's what it was.

[3:06:07]

Callan, B.: What kind of difficulty did you encounter being a department manager?

Stoner, H.: Well, of course, that gave you the added responsibility for personnel. Usually the personnel problems are much more difficult to resolve than technical problems. But I enjoy -- I enjoyed it and I didn't find any real serious problems. We had the normal, in later years, we had the normal -- I hate to use the word strife, but the normal tension between labor and management. That was not too serious. I remember I had perhaps more differences with the upper management's dealing with the union than I had dealing with the union directly, myself.

Callan, B.: I haven't heard much about the unionization up there at K-25. Was there -- I don't know. Can you tell me more about that? More about the labor unions out there? Did they interview and, I guess, the union leaders and managers, did they get along pretty well?

[3:08:04]

Stoner, H.: Well, uh, perhaps I might answer your question about how the management and union got along best by describing a session on union contract. You would find that there was a great deal of posturing and position taking and sometimes there are other strong positions and statements being made by each side and then afterward you go off and have a beer together. So, there was -- in the actual dealings people had strong positions, but I think they respected one another. We had some strikes too where the operating, so called the hourly people, the maintenance people went off on strike and those in the salaried positions stayed on and operated the facilities by working round the clock and sleeping on cots that we would set up on the operating areas.

Callan, B.: How often -- how many strikes happened and how long were they?

[3:09:58]

Stoner, H.: I don't remember how many there were. Anything that I would say would be strictly a guess. I just don't remember how many there were.

Callan, B.: Okay. Well, this is really the first comments I've gotten at all about unions whatsoever and I'm glad you brought it up. What about women at the facility? What sort of roles did women have working at K-25? How were they treated?

Stoner, H.: Uh, the women primarily were operators that sat at the instrument panels and observed the -- what was taking place with the processes demonstrated by instrument readings. And sometimes they were required to make minor adjustments to the instruments. But that was the primary role. They also worked as clerks and secretaries. But at that time a technical person, a female technical person was extremely, extremely rare.

Callan, B.: As far as proportion of the workforce, would you say there was more males overall or more females at the facility? Or was it about the same?

[3:11:33]

Stoner, H.: Well, in the early days there were many more males. They, as I say, at that time females were just not accepted in the workforce. That came along later. I remember very clearly, and this goes on into the 1960s at Y-12 -- a secretary that I hired was UT mortar board, essentially a straight four average, extremely intelligent woman and all that was available for her was a secretaries job. And, of course, now they're in all levels of management, but in the 1960s that was an actual experience. She was extremely competent and after being with me for about a year I think she knew my job as well as I did -- [laughs] -- and was -- what I'm trying to explain was competent and capable of doing a great deal more than just being a secretary.

Callan, B.: Right. What about the roles of minorities at K-25? What kinds of jobs did you see minorities doing? How were they treated?

[3:13:27]

Stoner, H.: Well, of course, that again changed -- the role of the minorities changed greatly with time. When, if you talk about 1944 and 1945, the African Americans were not even permitted to use the same drinking fountains or the same toilet facilities. They had black and

white facilities. And the, the African Americans, for the most part, had the laboring jobs. With time, of course, that changed and the diversification issues started to grow and integration became very much an issue. We went through a great deal of difficult experiences. Oak Ridge integrated rather easily and successfully for the most part. We had much more difficulty in, well in Clinton for example. Rather than integrate they blew up the high school. They had to call in the National Guard. The Clinton High School people for some period of time, until they could build a new high school facility, used the Oak Ridge facilities. And we had school going pretty much -- I don't know that it was around the clock, but the Oak Ridge people go to school for part of the day and the Clinton people would use the same facilities for part of the day. This was an outcome of difficulties with integration.

[3:15:40]

But all that's a matter of history and fortunately now the situation is much improved and the African Americans have positions of great importance in the Oak Ridge facilities. There are many of them highly trained scientists and engineers.

Callan, B.: Yes. Things have changed with time. Let's see. These are just sort of, I guess, kind of our wrap up questions here. Kind of broader perspective questions that you have actually already given me some pretty good broader perspective type comments that were just beautiful earlier. And I think we've already touched on this one, but I'd like to have you respond to it one more time. Describe what future generations should remember about K-25.

Stoner, H.: What future generations should remember I think it the, the tremendous contribution that people, that a nation can make when there is a national will to do so. When there is not a great deal of political differences, that everyone has the same goal in mind, that tremendous things can be accomplished.

[3:17:32]

I think that's the best way I can respond to your question.

Callan, B.: That was -- I couldn't do any better myself. If you were writing a story about Oak Ridge and K-25, what topics would be in your story? Like if you were to write the outline, what would be your key topics that you would cover in your book?

Stoner, H.: I think the key topics that would be in a book about K-25 -- perhaps one of the first ones would have to be the development of a national concept of the process. Second, the design and construction of the facility. Third might be the operation and the goals for the operation. And perhaps, finally, the -- well not finally, but then the expansion, which was a tremendous program. And then ultimately the closing, shut down and closing the facilities.

[3:19:21]

Callan, B.: That was a well thought out outline. Your good at thinking on your toes, let me tell you. [laughs].

Stoner, H.: Uh, let me relate a few anecdotes about the early construction period that just came to mind. But, things that were new and different to me was the very religious nature of the local peoples and so you would find, going to work, alongside the lunch bucket was a Bible. And people would read their Bibles during the lunch breaks or at times they would sit and read the Bible. This, of course, was something very new and strange and different to me. And a scene that I might describe a lunch break during the construction of the buildings -- now here, here are buildings that are only partially finished. No sides. You can look right outside. And you would see a man with people sitting around him preaching fire in the brim water. And people just fascinated, listening intently to his sermon. Then you could see, sprinkled around as you walk on, other people sitting reading their Bible. And then you can go on a little bit further and you'd see a group of fellas down on their knees shooting crap. These things actually were going on -- it was just amazing.

[3:21:50]

Callan, B.: Just all the same time depending on where you were --

Stoner, H.: Yes.

Callan, B.:[Laughs]

Stoner, H.: Uh, but I guess when you have thousands of people, you find all different types. But, this was fascinating to see this type of activity going on as you walk around at lunchtime.

Callan, B.: And -- you're actually not the first person that's made mention of that. It just --

Stoner, H.: Oh really?

Callan, B.: Yeah. It seems like over the last -- the interviews in the last 24 hours people have talked about people preaching in one room and playing craps in another room. There must've been a lot of that going on because -- [laughs]

Stoner, H.: Yes. It was very unique.

[3:22:36]

Callan, B.: Okay. Well, is there anything else that you would like to discuss, say, or expand upon? Because I don't have any questions. Is there --

Stoner, H.: Uh, yes. Comes to mind -- we've been talking mostly about K-25 and its beginnings and its purposes and so forth, but a very interesting thing to me was the people. The people came here from all over and so -- one of the pastimes, of course, was the question, "Where are you from?" And everybody, of course, came from a different place and a different background. And many of us were quite young and in the early family stages so babies were popping out [laughs] at a rapid rate. And one of the pastimes was swapping baby clothes and baby furniture from one family to another. Friendships were formed very quickly because you had to depend on your neighbor when -- well, usually when grandma appeared was when there would be a new baby, but there were no grandmas. They weren't allowed in the town. And, uh, while we could get a pass for them to come in, it was not as easy to do. In most normal towns grandma just lives down the street, but here in this -- in Oak Ridge, family was usually far away and so you were dependent on your neighbors for help; so friendships formed very, very fast and very lasting friendships that we are enjoying today.

[3:25:00]

Callan, B.: It almost sounds like a family of sorts, I guess. You know, you didn't have any grandparents, like you said, to rely on and when you had your first kid it sounded like, at the time, it was a very young, closely knit community and as far as things like that go, everyone had to kind of rely on each other or figure things out on

their own. So it's like a little self-sufficient community and I guess that's what kind of makes Oak Ridge unique, in a way, is that you guys and everybody I talk to seems to talk about what close bonds you had with your neighbors and these lifelong friendships. It seems like most people that came down here never really even left and that you just kind of stayed in this little closely knit community throughout -- you know, from the point that you all got here. Is that kind of describe the --

[3:25:56]

Stoner, H.: Uh, yes. Yes, very much so. And there was another element that made for closeness and that was that contrary to established towns, there were not the rich and the middle class and the poor. Everybody was the same; and the housing that you had depended on family needs and not wealth. If you had only one child, you had an E-1 apartment. If you had two children, you had a B house. And that's type of thing. Also, since there were only very, very, few housing types, if your neighbor or your friend lived in a C house, you knew exactly what kind of a house he had. So, everyone was sort of treated the same. And you didn't have a town for the upper class -- or neighborhood, I mean, for the upper class and another neighborhood for the lower income people. Everyone was the same. And I think that, that too lended itself to close friendships.

Callan, B.: That's a good observation and I thank you for sharing that with me because I have not -- haven't heard that in any of my interviews before, but that's really a very good point that you bring up. Is there any other topics that we need to cover before this interview ends that you can think of?

[3:28:04]

Stoner, H.: Uh, one topic is the school systems. The school systems from the very early days were excellent. The Manhattan Project provided for top notch educators to be moved into the town and so our school systems have always been excellent and our children have benefitted from it. Our grown children now look back and say, well, you mother and dad, living in Oak Ridge, you don't know what the outside world is. You had it very good and we, growing up in Oak Ridge, had an excellent background for preparing for our own future education and vocation.

Callan, B.: That's -- did you see -- I guess when some people came to Oak Ridge they probably already had teenage children or middle school age children. Did a lot of the children that were raised during that time come to work at Oak Ridge like at ORNL or not?

[3:29:34]

Stoner, H.: Uh, you're asking if people that grew up and who were educated in Oak Ridge --

Callan, B.: Right.

Stoner, H.: -- later became employed in the plants. Yes, to some extent they have. But many of them have made their livelihood elsewhere. I have four daughters and all of them have lived elsewhere. They come here frequently to visit, but my children did not work in the facilities here.

Callan, B.: Well, that's all I have. Any other final thoughts? I think we've got it pretty much covered. [laughs]

Stoner, H.: I cannot think of anything.

Callan, B.: Okay. Well thank you so much for this interview. I think --

[End of Interview]