National Educational Technology Solutions LLC

K-25 Oral History Interview

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Interviewee: Donald Kellogg

Interviewer: Bart Callan

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[Tape 1 of 2]

[1:00:14]

[crew talk]

Callan, B.: So we're ready to start. We're going to start with the easy question first. Just go ahead and state your name and spell your name out for me so that we have that on camera.

Kellogg, D.: I'm Don Kellogg. D-O-N-A-L-D K-E-L-L-O-G-G.

Callan, B.: Okay. Let's start out with some background questions. Where were you born?

Kellogg, D.: I was born in St. Louis, Missouri.

Callan, B.: Okay. Where were you living prior to coming to work at K-25 in Oak Ridge?

Kellogg, D.: St. Louis, Missouri.

Callan, B.: What kind of work did you do prior to working for K-25?

Kellogg, D.: Well, prior to going to the university, I served in the Army for a while, and I worked at a consulting firm at a cement plant, aircraft industry, mattress industry [laughs], quite a few different things of that nature.

Callan, B.: Okay. Where did you go to high school and what year did you graduate?

[1:02:30]

Kellogg, D.: I went to Beaumont High School and graduated in 1942.

Callan, B.: Did you attend college or university?

Kellogg, D.: Yes, I went to Washington University in St. Louis.

Callan, B.: What degree did you obtain?

Kellogg, D.: Chemical engineering.

Callan, B.: What years did you attend that university?

Kellogg, D.: I'm sorry. Repeat.

Callan, B.: What years did you attend that university?

Kellogg, D.: Oh, I was there from 1948 to 1952.

Callan, B.: We are going to start talking a little bit about working at K-25. I want you to tell us why you came to work at K-25, what attracted you to come, and how you heard about it?

Kellogg, D.: When I was young, I had chronic bronchitis, and I came down with it every year, and it was primarily because of the atmosphere in St. Louis. A lot of coal burning, a lot smoky atmosphere. So I was looking for a place that was fairly clean at the time. And it seemed like the Tennessee Mountains were an excellent place to go. Plus, I had heard some things about Oak Ridge, and I was rather curious.

[1:03:35]

Callan, B.: What sort of things did you hear about Oak Ridge?

Kellogg, D.: Oh, that things were going on down here that no one knew anything about. [laughs]

Callan, B.: What were you first recollections when you arrived at K-25, first thoughts?

Kellogg, D.: I rode in from an airplane with a gentleman by the name of Dick Ohm (phonetic sp.). And he kept asking me questions in the car. And I told him why I was down there. He says, "Well, if they don't take you, talk to me again. I'll take you." [laughs] Of course, I went to an interview at the operations division.

Callan, B.: What year did you work at the K-25 site? I think you answered that in the pre-interview, but so we have it in here.

Kellogg, D.: I worked there from 1952 -- June 30, 1952, until June 30, 1986.

[1:04:32]

Callan, B.: How did you commute to and from work and what was that like?

Kellogg, D.: Well, originally they had bus transportation to work, and you'd get out at the terminal and ride a bus there and then ride a bus back. Later on I

purchased a car and they opened the gates -- didn't open the gates but made it less stringent to get in. So I drove out to the plant and back.

Callan, B.: Were there any famous people that you met or you heard about while you were working at the facility.

Kellogg, D.: Let's say they were famous in my mind, but I don't think they were nationally famous.

Callan, B.: Can you give me some examples of some people that might have been famous in your mind?

Kellogg, D.: Stan Sneef (phonetic sp.), he was a division head, Linus Patten (phonetic sp.), he was an engineering division head, Ken Summerfeld (phonetic sp.), who was a division head and eventually vice president, and of course, Bob Winkle, who was plant manager at Portsmouth and then later at K-25, and Paul Hueber, who was a manager at K-25.

Callan, B.: And what sort of stuff did they do that makes them famous in your mind?

[1:05:43]

Kellogg, D.: Hueber, because I worked with him on estimates for the new barrier plant. Winkle, because everyone seemed to be ascared of him. I found him quite a nice individual. [laughter]

Callan, B.: If people inquire what kind of work was done here at K-25, how would you describe it?

Kellogg, D.: Primarily mechanical. There was chemical work involved but primarily it was mechanical engineering.

Callan, B.: What are your most visit recollections of the time that you spent in Oak Ridge and K-25, some of your fondest memories or --

Kellogg, D.: Fondest memories?

Callan, B.: Yes.

Kellogg, D.: I remember a meeting. I was at Portsmouth, and I was chair of the meeting. And I was trying to make a point, and I hit the table, my lenses fell out of my glasses, which broke up the seriousness of the meeting, of course. [laughter]

Callan, B.: I can imagine. Are there any other things that happened?

Kellogg, D.: Yes, the -- my type of work was testing, and I was quite interested in new test facilities, and we progressed in our plant, gradually through different test facilities, building some of the new ones and testing some of the old ones.

[1:07:07]

Callan, B.: What did you like most about working at K-25?

Kellogg, D.: The testing. Later I was engineering and it was all right, but I enjoyed the testing.

Callan, B.: What did you dislike the most about working at K-25? Any recollections?

Kellogg, D.: I can't say that I had any dislikes.

Callan, B.: Have you stayed in touch with the people that you worked with at K-25, pretty much?

Kellogg, D.: We have a luncheon every third month, on the third Wednesday, in which a bunch of old croonies get together and discuss everything from the day we left there until now.

Callan, B.: We're going to talk a little bit about the working conditions and the work environment at the K-25 facility. Of course, there were background check completed on everybody before they came to the facility --

Kellogg, D.: Yes.

Callan, B.: Were you aware of the background check?

[1:08:05]

Kellogg, D.: Oh yes. Every time an FBI agent went to a neighbor's house, they called me and told me he was there. [laughter]

Callan, B.: And how did people communicate with fellow co-workers in a facility where you had to worry about secrets and whatnot? What was that like?

Kellogg, D.: We didn't do any communication outside the plant. All of our communication was inside the plant. So there, the whole plant was

classified, so we could talk to one another freely.

Callan, B.: That was pretty much what my questions was. When you were like at lunch or whatever, everybody could pretty much speak freely?

Kellogg, D.: At lunch we didn't talk too much. Most of my lunches, I ate in the office.

Callan, B.: What were the physical working conditions like at the facility where you were at?

Kellogg, D.: Well, when I first went there, it was a bunch of desks on top of an operating floor and then gradually that was improved until we had a walled-in area. And eventually some new buildings were built, and I moved into some of those. And I moved into some of the old ones that had been renovated too.

[1:09:11]

Callan, B.: I've heard that -- I've never been out and looked at the plant itself -- but I've heard that there were issues with the temperature of the facility. Did you find the working conditions fairly -- was it hot? Was it cold?

Kellogg, D.: Well, inside the plant itself it was pretty hot. In some of the buildings, it was awfully warm. And during the time I was there, they installed additional fans to try to cool down the buildings in K-25 and K-27.

Callan, B.: What rules were important to follow?

Kellogg, D.: I'm sorry.

Callan, B.: What rules were important to follow? I guess, by that, you're working in kind of a secret environment, were there certain rules and certain protocols that were really --

Kellogg, D.: Oh yes. You had to understand what classification was and you didn't discuss it at home. I made a mistake -- not really a mistake in classification, but I discussed something with my wife one time. In a very short time, we got questions from her family, which I -- you know, which was more involved than I wanted to discuss. And the enormity of this was my wife is from Central America and her family is in Central America, and yet the questions came back. So I never discussed classified information at home. I didn't tell my wife what I was doing or anything.

[1:10:38]

Callan, B.: What was your supervisor like?

Kellogg, D.: Which one? I had --

Callan, B.: (indiscernible)

Kellogg, D.: The first one was Rod Schaefer, a great guy. Sometimes a little hard to get along with but most of the time very easy to deal with, and his supervisor, which was later my supervisor was Jimmy Parsons, and I don't think there is a greater guy than Jimmy Parsons.

Callan, B.: Why is that?

Kellogg, D.: He was understanding. If you had a problem, he'd talk with you about it. And he was very smart, very knowledgeable of the plant.

Callan, B.: What about your co-workers? What were they like? Did everyone pull their weight?

Kellogg, D.: Oh yeah, we got along fine with the co-workers.

Callan, B.: You said you didn't really eat in the cafeteria. You brought your own lunch to the office?

[1:11:30]

Kellogg, D.: I brought my own lunch, yes.

Callan, B.: How come? Was the food in the cafeteria not any good?

Kellogg, D.: No. I was usually involved in some sort of testing, and I wanted to be there so that if something came up, I could help them immediately. That, plus the fact that we talked together several times and some of the conversations were interesting.

Callan, B.: Let's talk a bit about that. I guess there were some health facilities. What kind of health facilities were available to you at Oak Ridge, in K-25?

Kellogg, D.: At the time I went to work there, they had a medical facility, and as I worked there, the medical expanded. The number of doctors were increased, and I believe at nighttime, which I didn't work at night, they

had nurses there -- a nurse there on call. They were quite good. For those times, now you gotta remember that that was before all the stringent requirements they have on radiation and everything now. But they did check us, and if we had an exposure to radioactive material, they ran samples on us almost immediately.

[1:12:44]

Callan, B.: So health care was provided for you. Was it also provided for your family?

Kellogg, D.: Yes.

Callan, B.: Were you given a physical prior to starting work at the facility?

Kellogg, D.: Oh yes.

Callan, B.: Some of the questions that I ask, when you respond, can you kind of paraphrase them because when this interview footage is used, they're not going to hear me. So, like for example, if I were to ask were you given a physical, if you could state that as a --

Kellogg, D.: I understand.

Callan, B.: -- declarative statement like that. How much emphasis did the company and supervisor place on safety?

Kellogg, D.: Not too much at first, although we were safe. There were certain restrictions that we had, but later, my last couple of years there, I was head of a safety department in K-25. And we were very careful about safety then. And Joe Dykstra, who is going to be one of your interviewees, wrote a safety analysis on the plant in which he specified which things were critical and had to have multiple controls on them.

[1:13:57]

Callan, B.: Your health was regularly monitored at the facility?

Kellogg, D.: Our health was regularly monitored generally, I believe, initially on a one-year basis, but then they got a little less stringent on those people who were working on offices, and I may have had one every five years or something like that. Or if I had a problem, I could go to the medical dispensary and they would take care of me.

Callan, B.: What kind of monitoring did they do?

Kellogg, D.: They took urine samples, occasionally took hearing samples, and then blood pressure, blood samples, things of that nature.

Callan, B.: Were you ever hurt or injured while working at K-25?

Kellogg, D.: I was never injured while working at K-25. I had only one experience in which I had to go to a doctor and that was I was climbing the steps on the back of one of the buildings and I got stung. I went into my office, and the people came in and saw me and they said, "Boy, your head is swelling pretty bad." So I went over to the medical facility immediately. And the doctor examined me and says, "Well, don't worry. If it were serious, you would be dead by now." [laughs]

[1:15:15]

Callan, B.: What type of radiological or chemical monitoring was performed that you were aware of and were you informed of the results of the monitoring?

Kellogg, D.: I had a badge, which had a sensitive material in it, and we wore it all the time we were in the plant. Since I never was over-exposed, I never had any report back to me on those things.

Callan, B.: We have some Manhattan Project questions, but you started in the '50s, so I guess we'll go straight into the cold war type questions. Does that sound good to you?

Kellogg, D.: All right.

Callan, B.: What kind of work was being done at the K-25 facility during the cold war ear?

Kellogg, D.: My initial responsibilities at K-25 during the cold war era was testing centrifugal equipment for K-25 and K-27. We started off with a simple loop, which was primarily used for testing centrifugal pumps and modifications to centrifugal pumps. Eventually we built a more sophisticated loop, which included a complete stage configuration. And there we tested converters, valves, pumps, whatever else, and coolers, whatever else might be used in the stage.

[1:16:38]

Callan, B.: Did you work change over time from the period of 1950 until you said you were there until the 1980s?

Kellogg, D.: Oh yes. I started off in a simple test loop, went into this sophisticated loop, and then took over an actual compressor test loop, and then was assigned to the K-633 building where I had five loops, two axial -- 33 size axial flow loops, one 31 loop, and then a loop that could test centrifugal compressors, and which could be modified to do other work also.

Callan, B.: Am I allowed to ask what a test loop is?

Kellogg, D.: A test loop is a continuous section -- continuous grouping of piping that allows fluid to flow from the compressor through a cooler through a converter, if you have a converter in there, and then back to the compressor. You have in that, elements that would permit you to measure the pressure ratio in the compressor and the flow. And those were the two critical things that you had for evaluating a piece of equipment.

Callan, B.: Did you find conducting test loops redundant work or was it always interesting?

Kellogg, D.: I found it interesting, but you were never done at work. I got many midnight calls [laughs] because my operators or the operators -- I was not in charge of operations. I was a technical person in charge of the test loop. But whenever they would have a problem with some test that was outlined for them, I might get a call at home and sometimes I'd have to come in, but we kept those test loops going.

[1:18:22]

Callan, B.: How often did you get called in?

Kellogg, D.: Oh, not very frequently.

Callan, B.: Are there any interesting stories you remember about K-25 during the cold war period? I remember this one story when we were talking about doing these interviews, and this guy had talked about how the Russians had sent a real thin piece of wire filament and they were trying to show what their technology was, and the engineers over there bore a hole through the center of it and sent it back to them. Do you have any interesting stories or anything that happened like that?

Kellogg, D.: I haven no -- I was not involved in any of the work that the Russians sent

over here. I did make an analysis of some plants in France to determine the approximate production rate of those plants. It was based on aerial photographs. I think that's about the extent of my outside work on gaseous diffusion.

[1:19:25]

Callan, B.: Any other interesting stories or occurrences that happened at K-25?

Kellogg, D.: Yeah, this first nuclear ship. Apparently, one of the deficiency was exits in the walls or around the pipes to permit an outflow of material if they should have an accident, and I was given an assignment one time to find out ways we could plug those holes. I don't think that's what they used, but it was interesting to study it.

We also had some NASA assignments. NASA was doing some work on testing filters, and they felt that that wasn't really their field, so they asked us if we could take on that testing. And I did some preliminary work on that, although the testing itself was taken over by another person.

Callan, B.: The facility was put on standby somewhere in the '60s. What did you do when the facility was put on standby?

Kellogg, D.: I continued to work from my offices until about 1974, although I shifted around to some of the other offices during this period of time after the shutdown because we had these axial compressors and the test loops that would test them, and we were constantly trying to improve the actual compressors. So it was just as convenient for me to work from my old offices as it would be for me to move to some other area. And besides that, those offices were still kept pretty much in use during that period of time.

[1:21:04]

Callan, B.: Am I allowed to ask what an axial compressor is?

Kellogg, D.: Yeah. Our axial compressors had a main flow at the inlet. It was compressed by means of blade foils in a rotating drum opposing blade foils a stationary stater. And then we had a side inlet to this, all in this axial compressor also. And then the two foils would join to the last part of the compressor and be shipped -- sent to a converter.

Callan, B.: What were your thoughts about how the activities at the facility were

accomplished at K-25, how it revolutionized the world?

Kellogg, D.: It revolutionized the world because we were able to stand off the Russians.

Callan, B.: That's a good answer.

[crew talk]

Callan, B.: Okay, one more time because we probably had me in the background. Go ahead and say that again.

[1:22:08]

Kellogg, D.: It probably revolutionized the world because we were able to stand off the Russians.

Callan, B.: You've already told me about what jobs you did associated with K-25. Do you want to restate that again?

Kellogg, D.: Yes, I worked at K-25 primarily in the area of testing. I tested centrifugal equipment, which consisted of centrifugal compressors, converters, and coolers, and sometimes control valves. We determined the physical characteristics of this equipment.

Callan, B.: What was your most challenging assignment as an individual or as a group that you had to accomplish?

Kellogg, D.: That came much later in engineering, when I was responsible for the design that K-25 engineering was producing for the K-31 and K-33 modifications, not related to K-25 at all -- building K-25 and K-27.

Callan, B.: What was your most significant accomplishment while at K-25 as a group or as an individual?

Kellogg, D.: When it was limited to K-25, it was primarily the testing. Much of the stuff we tested, much of the things we tested, were later installed in the plant. Of course, development -- did the work on the basic work, the design of the test equipment. And then we incorporated in the shops, put in the loop, and got the characteristics of it to see if it met their criteria and could be used in the plant.

[1:24:01]

Callan, B.: The testing was usually done prior to the equipment being implemented in the plant?

Kellogg, D.: Almost every piece of testing, every piece of equipment was tested before it was implemented in the program of the plant.

Callan, B.: Did the testing you did also occur while the equipment was in plant to check on whether it was going to break down or --

Kellogg, D.: Oh yes. In K-25, we tested the equipment. Then it was -- while the equipment was operating, the old equipment, the old design was operating in the plant. Then we tested it and we ran a long enough test that we would be sure it would be stable. And then we put the equipment in the plant, if it was successful -- the tests were successful.

Callan, B.: Did you do any management or administrative work at all?

Kellogg, D.: In my later years, I was head of a department, Safety Department. In the last years I was there, the cascade improvement and operation department, during that improvement in K-31 and K-33, and I had a section in process engineering prior to that.

[1:25:19]

Callan, B.: How did you like being a manager?

Kellogg, D.: It was all right. I liked my hands-on testing much better though.

Callan, B.: Why is that?

Kellogg, D.: Because you can see some results. Sometimes when you're dealing with people, you don't see the results. A lot of them have their problems and they tell you about it. You talk to them about it, and then that's the last you hear of it. You don't know what happened after that. A test -- I can run a test, get some characteristics of it and find out what happened.

Callan, B.: What sort of management difficulties did you run into?

Kellogg, D.: Oh, people were -- in the management difficulties, people were always complaining about their increase each year, but we were limited in funds so we -- I would talk with them if they raised a question and explain there was a limitation on funds, and we had to distribute it as fairly as we could. I did run into a couple of bad reports that I made, and almost got into a racial situation. The particular girl that I gave the bad report to, I decided

to try to improve her, and I think I succeeded. She was later transferred to Y-12, and I understand she was doing quite well.

She was kind of sharp and critical of people. And we had long talks, and I would introduce some of her presentations, and I think I succeeded.

[1:26:55]

Callan, B.: Were there any conflicts that you remember that occurred between the managers, the workers, and the unions?

Kellogg, D.: I had no problems with the union or the union personnel. I had a man working for me who was a shop steward, Paul Zesing (phonetic sp.), and he was a -- pardon the expression. He was not the easiest person to get along with. But he and I got along just fine.

Callan, B.: Let's switch tapes real quick.

[End of Tape 1, Begin Tape 2]
[1:27:55]

[crew talk]

Callan, B.: This is Don Kellogg, and this is tape two.

Mr. Kellogg, you mentioned to me while we were switching tapes that you were talking about data loggers. First of all, what is a data logger and what does it do?

Kellogg, D.: It's a means of taking information from the cell via transducers or thermocouples or however we have to take and recording it automatically so that that particular information can be fed directly into a processing machine. Our first data logger, which was one of the first ones in the plant punched tape. And these tapes were taken and interpreted by the computers.

Callan, B.: What was it you were telling me about the data loggers?

Kellogg, D.: You asked at one time whether we had difficulties with the union. It wasn't really difficulties with the union, but the data logger was deteriorating and temperature had a strong effect on it. We had fans hooked into the cabinets to cool it as much as possible, but its cooling source was the control room. So, I would lower the temperature in the

control room below 70 and go home at night. And when I'd come back again the next morning, the temperature was raised again. So finally I had a lock box put on the thermostat and I lowered the temperature and locked the lock box. Came back the next morning and the lock was laying on the table and the lock box was open and the temperature was raised back up to 70 degrees.

[1:30:55]

It so happens I had a shop steward working in the facility at that time, and I'm sure he was the one that did it. But we got along fine, and I understood their problems. So we just made out the best we could until we eventually got some new IBM computers in.

Callan, B.: What was it like working with the equipment and technology they had back then versus IBM computer. You obviously have seen this evolution.

Kellogg, D.: Oh my goodness!

Callan, B.: Can you tell me a little bit about it?

Kellogg, D.: The first -- when I first came to the plant, we took data manually and gave it to some girls who had accounting machines, and we had quite a genius supervisor for those accounting machines because he managed to take that data, process it through square roots, through logs, and come out with an answer for us, and it was all manual. Girls were using mechanical adding machines. Then we got an IBM 650, I believe it was, in and we began feeding data still manually and then they would process it in this machine. Eventually, the computer facilities expanded, and we began taking data on tapes and then, following that, everything was electronically recorded on discs and taken over to the facility for interpretation.

[1:32:25]

Callan, B.: What was an IBM 650? What did it look like?

Kellogg, D.: It was a simple computer, but it could do quite complicated calculations. And it did those things that the girls were doing on accounting machines very rapidly and much more completely and much more accurately.

Callan, B.: Did they have a monitor or punch cards or how did it --

Kellogg, D.: Oh, it had -- the computer was in a computer facility. We had one of the

nicest computer facilities in the country. And it was one of the first computers that went into the facility. In fact, I think it was installed in another building first and the moved to that facility.

Callan, B.: How big was it?

Kellogg, D.: The facility?

Callan, B.: The IBM 650.

Kellogg, D.: Oh, it wasn't too large. It was relatively small.

[crew talk]

[1:33:46]

Callan, B.: You had mentioned a little bit about the roles of women working at K-25. I wanted to ask a little bit more about that. What sort of roles did women have working at K-25?

Kellogg, D.: When I was first hired in, we had one woman engineer in process engineering. She was quite competent, and she handled jobs you would expect a man to handle. I mean, she went out in the heat, in the hot cells, and did her work. Later, we had women engineers, when I was transferred to the engineering division, we had a few women engineers but not too many. Some of them were managers of an operating area and later transferred to engineering where they worked on this improvement program that went on.

I would say that they did not hold jobs during my initial phase there equivalent to men, but I think things improved as time went on.

Callan, B.: So did they have similar roles or did they typically serve in different types of positions altogether?

Kellogg, D.: There was many secretaries -- all secretaries were women. There were a few women engineers. There was, in my latter jobs, safety analysis, I had several girls working for me there and they did jobs just as well as the men who were working for me.

[1:35:21]

Callan, B.: How were they treated? Were they treated differently?

Kellogg, D.: There was one girl that was treated a little differently because she was so independent and didn't take any nonsense from men or anybody else. But she did a good job and she managed to talk to the people and get their acceptance of her. She had been a secretary and had been elevated to that position.

Callan, B.: Did you have any contact with African-Americans or other minorities while working at the facility?

Kellogg, D.: Yes. How much detail do you want to go into on that? [laughs[

Callan, B.: As much detail as you want to give me. Were they treated differently or what sort of job roles did they serve?

Kellogg, D.: We had a secretary, who was a girl, who graduated from an all Black college. She did typing for us. This was back around 19 -- late 1970s. But her spelling was atrocious. We had to go through the typed copies and correct them and give them back to her. When I was in the Safety Analysis Department, we had another girl working for us who had lupus, and she came in and she did as much work in four hours as the other girls that I had working there did in eight. She was terrific, and she worked on the word processor. It was unfortunate that she was sick most of the time.

[1:37:10]

Crew: If you can hold one second, sir. If you can watch your fingernails.

Kellogg, D.: Oh, clicking, huh. [laughs] Sorry about that.

Callan, B.: I'm amazed at the things you can pick up audio-wise when you're actually filming. There are sounds that you would never even notice or hear anywhere else.

You said you were married, correct?

Kellogg, D.: Yes.

Callan, B.: What was life like for your spouse and children?

Kellogg, D.: I think they had a normal life, as normal as I had when I grew up. Schools were excellent in Oak Ridge, and they had activities outside of the school, which kept them interested. It was like a normal city. I was never here when the gates were locked. You know, it was a closed city until shortly

after I came.

Callan, B.: Did you spouse also work at K-25?

Kellogg, D.: No. She was a homemaker.

Callan, B.: Was she supportive of your work, or did you even talk to her about work at all?

Kellogg, D.: We never discussed work. I never discussed work with my wife. She just knew that sometimes I might leave in the middle of the night, but she accepted that. And I got up early in the morning. She used to like to sleep late. She's gotten out of that habit now that we go to exercise.

Callan, B.: Was there any tension that happened at the home because she was in the dark about what was going on?

Kellogg, D.: No, none that I know of, none that I recognized.

Callan, B.: So, no issues dealing with secrecy?

Kellogg, D.: No. She understood.

Callan, B.: Let's just talk a little bit about living at Oak Ridge. Where did you live, and what were your living conditions like?

Kellogg, D.: First time I came to Oak Ridge, I came to Casper Hall, which was an old dormitory that they had, apparently used by troops before I came there, and it was pretty run down. Later I was shipped to the Cambridge Hall. Had a similar room, but the hall was much newer and much more livable. When I got married, we moved to East Village and lived in a house there. They were family -- nice houses, not well insulated, but they were pretty nice houses. We had a three bedroom, and that's -- just prior to that, I lived in the Garden Apartments before we moved there. And after that we bought our own house in Claxton. We moved out of Oak Ridge and moved to Claxton. Stayed there for a while, but my wife took my kids to school in Oak Ridge all that time. So it became quite a strain on her and we decided to build in Oak Ridge. And then we built a home on Netherland Avenue. And we lived there for about 20 years before we went to Savannah. After we came back from Savannah, we built a home in Emory Valley, and we're living there now.

Utilities, everything seemed just fine in Oak Ridge. We never had any problems.

[1:40:17]

Callan, B.: And you were in Oak Ridge when it was the Secret City, when it was fence and all?

Kellogg, D.: I came either immediately before or just after they opened it. The plant area was still blocked. I mean, you had to go through a gate just to get on that reservation, but I believe the city was open at the time.

[1:40:45]

Callan, B.: What did you do for recreation and entertainment? What did you do when you weren't at work?

Kellogg, D.: Well, initially, of course, I lived in a dorm, and we had lots of card games going on there, or we'd go out to Central Tavern, which was in the center of town -- it was burned down -- and had a few beers and talked with my friends there. After I got married, I became more serious, and I was civil defense director at the church for a while and on the PTA, of course, when my kids were going there. And then I joined the Elks. Active most -- I didn't care to go through the offices, but I was active in renovations to the Elks and served on several committees, the newspaper committee one time, entertainment committee for another time.

My wife had friends who had come from Cuba, Honduras, and Puerto Rico, and she got associated with them, and so they got together frequently and had a luncheon or something of that nature. And, of course, my wife and I went to the movies. We'd go to these plays they had -- I think it was called the Paragon. And I remember one in particular where I brought a dictionary along and we -- my wife didn't speak English at the time. So I dated with a dictionary. [laughs] And we went to this play and we hissed the villains and cheered the heroes, you know. So they had a lot of activities of that nature.

And then, of course, I was on an entertainment group that Virginia Donaho (phonetic sp.) headed. And we supplied music and had frequent dances, 40s of that nature.

[1:42:37]

Callan, B.: Is there anything special or unusual that you'd like to discuss regarding living in Oak Ridge?

Kellogg, D.: No, nothing that --

Callan, B.: I'm going to move onto some final questions. So now that I've got you all warmed up, these are the big, hard-hitting questions. No really! Describe what should future generations remember about K-25? What should be preserved?

Kellogg, D.: I think the typical stage ought to be preserved, a real one, not these mocks that they make that really don't resemble a stage. Some of the data that we generated in the test facilities probably should be put in permanent records some place. I understand that most of them have been shipped to Atlanta in storage. Some of that information would be useful in the fields of technology and compressor design. We had some tremendous designers in development that did very fine work on compressors.

It would be nice if some of the buildings could be preserved, but, of course, as you probably know, K-31, K-29, and K-33 had been completely -- had all the equipment completely removed from them. Some of the stages in K-27 or K-25 ought to be preserved because they were the initial stages. They were the first design, and it was something that had never been tried before, you know. It was unique.

[1:44:17]

Callan, B.: Is it okay if I ask what stages are if you could describe that for me?

Kellogg, D.: Sure. Stages, if they want to preserve a small one, they can preserve one in the 306 section. These stages were -- I guess you need a definition of what a stage is?

Callan, B.: Yes, just from a --

Kellogg, D.: All right. A stage is a pipe, which has an "A" stream going up. This is a stream that has passed through the barrier and a "B" stream going down. This is a stream that has been rejected by the barrier, and passes through a pump. This process is repeated continuously in different stages onto the top of the plant and to the bottom of the plant. The enriched stage is accumulated, goes upward, and is a top product off of the plant. The depleted stage goes downward and is taken out near the bottom of the plant. The feed, of course, is always less than we've been taking out in the depleted stages. So the feed was installed at the very bottom of the plant.

These stages were the enrichment stages. They consisted of a converter

with -- which contained the barrier. The barrier separated the enrichment from the depleted. They had some times -- some of our improvements involve eliminating one of the pumps. But generally they had two pumps, an "A" pump and a "B" pump. "A" pump, as the name implies, took the "A" stream. The "B" pump took the "A" stream and the "B" stream and would pump it to the next stage down stream.

They had a control valve which regulated the pressure in the stages. And they had a cooler, generally, built into the converter shell.

[1:46:00]

Callan, B.: How many of these stages were there?

Kellogg, D.: There were thousands of them. Offhand, I don't remember the number, but there were thousands of them. It took thousands to enrich the UF_6 site. One stage did very little enrichment.

[1:46:20]

Callan, B.: What great accomplishments were done here and what should be acknowledged for future generations? What should be acknowledged for the work that was done here?

Kellogg, D.: The original design, the way that a group was assembled with concepts incorporated these concepts into a design and built it in record time, and it turned out to be successful. There were improvements made. We decreased power usage quite a bit. We improved the quality of the barrier. We improved the quality of the pumps, but the initial design was excellent. And I think that should be carried on to generations.

Callan, B.: If you were telling a story about Oak Ridge and K-25, what topics would you cover?

Kellogg, D.: If I were telling the story about K-25 and Oak Ridge, I would cover the initial design, the speed in which the plant was built, how effective it was in producing the product that they desired and how later, when it was expanded both for bomb production and eventually for our reactor production, the design and the studies that went into that. Those actual compressors were unique for gas such as UF_6.

Callan, B.: What was unique about them?

[1:47:07]

Kellogg, D.: The flow, the direction they took the flow in, the blade design, and the compression that we got through that compressor.

Callan, B.: I've heard a little bit about these compressors and I heard that the tolerances within these compressors and the weight of the blade, that sometimes when they powered them up, you could break a blade because they were built with such close tolerances. Do you know anything about that, or can you talk a little bit about the level of skill and engineering that went into these things, where we didn't have the same technology to do those sorts of things then that we do today. Was it hard to build these things? They had such close tolerance levels.

Kellogg, D.: The initial tolerances on the compressor were close, but to gain efficiency on one of these compressors, you had to eliminate the back flow from the blades. And that was done by decreasing the tolerances. So throughout the expansion program, these tolerances were decreased and machine shop techniques became more and more aggressive. There were times when the compressor may not fit together properly and a deblade occurred. But generally they did a very fine job in machining these staters. The staters were aluminum. Most of the rotors, the rotating section, was aluminum or steel. And the blades, of course, were cast of a special alloy that was resistant to F_6 corrosion. Cast blades trimmed and brought to those close tolerances was really amazing.

[1:49:44]

Callan, B.: I've heard that sometimes when they would bring one of these compressors together, I mean, there was a pretty reasonable chance that it wasn't going to start up because the weight of the blades, had a bend on the shaft. Have you heard anything about that?

Kellogg, D.: Yeah.

Callan, B.: (indiscernible) then you were cool, but if it didn't --

Kellogg, D.: When I first came here, they were having a problem in K-29. The rotor was a part of a shaft, and it would reach a critical frequency and when these critical frequencies were reached, the entire floor of the plant would vibrate. It vibrated to a point where it was cracking. And they made studies on this critical frequency and how they modified the compressors so that this wouldn't occur. Eventually they changed out most of the

compressors in K-29. In K-31 and K-33, they recognized that problem and they avoided it.

[1:50:54]

Callan, B.: Is there anything else you want to discuss, say, or expand upon before we end this interview?

Kellogg, D.: Yeah, I think nickel plating that should be covered.

Callan, B.: Talk a little bit about that then.

Kellogg, D.: They did a fine job of nickel plating. Initially our piping was Monel so that we wouldn't have a problem worrying about plating. Some converters were copper clad, some were nickel clad, and then they developed a technique for nickel plating. The initial plating was done chemically, and they had some extra excellent coatings, only 5-mil thick, that would protect the equipment from UF_6. UF_6 is a very corrosive gas, and if it's exposed to steel, you have all sorts of problems. During the expansion program, this pipe and all steel was coated with -- all steel used in the process system was coated with nickel.

Callan, B.: Prior to that, like during the Manhattan Project there, it wasn't? They were just --

Kellogg, D.: They used several things there. They used Monel, which was resistant. It has a large percentage of nickel, and it was resistant to UF_6 corrosion. They used copper. Copper eventually corrodes and gave them a problem. And they also had difficulty in cladding the steel with the copper. Plating they used some nickel plates but eventually they developed a technique for plating that was satisfactory.

[1:52:36]

Now the initial converters that went in were not plated. It was later on in the program that they developed these techniques. So, much of the process piping and centrifugal pumps in K-25 and K-27 -- well the casings of the pumps were plated, but the impeller was generally made of Monel.

Callan, B.: With the nickel plating techniques that were developed here, was it applied to other areas of industry?

Kellogg, D.: I think the best person for you to talk to about that is Joe Dykstra since he

was responsible for a lot of that plating.

Callan, B.: Okay. Well that is really all the questions that I have for you. Are there any other things that you think I missed in this interview or other things that you would like to discuss that would contribute to the history of the K-25 facility?

Kellogg, D.: No, I can't think of anything else.

[1:53:39]

Callan, B.: I can't either. So, I really appreciate you interviewing with us and making this contribution to this whole history of K-25.

Kellogg, D.: There's only one thing that I'd like to say. I participated in the design in the expansion program. I participated in the testing. I participated in the operation. I participated in the shut-down. And just last year, or year before last, I participated in tearing one of the plants down. [laughs] So, I had it from beginning to the end. This was in K-31 and K-33.

Callan, B.: So what's it like to be doing something like this almost your entire life? I guess it plays a pretty significant role in your life.

Kellogg, D.: I think that in this industry, we're one of the few people that have seen a project go through completion and end. So many people in industry start something and they never see where it goes. But we saw it start, progress, and then end.

Callan, B.: Okay.

Kellogg, D.: Okay.

Callan, B.: Well thank you, Mr. Kellogg. I really do appreciate it.

Kellogg, D.: All righty.

[crew talk]

Callan, B.: Let's talk a little bit about K-25 and obviously when people mention K-25, they're talking to you. But the K-25 site consists of several different support buildings, etc., and you wanted to talk about the addition of some of these other buildings and how they were significant. So let's talk a little bit about that.

Kellogg, D.: The K-25 site contained the K-25 and K-27 buildings and the K-29, K-31, and K-33 buildings. K-29 had been built by the time I got there and so I merely experienced the problems in 29. One was the shaft going through the critical frequencies, which we had mentioned before. Also a corrosion that developed on the washers under the blades; these washers which corrode to a point where they would expand the aluminum shaft and break the blade off. What we learned in K-29 benefitted K-31 and K-33 tremendously. K-29 was one of the first plants that had an axial flow compressor in it. And from their experience on these axial flow compressors and the experience with these washers and the experience with critical frequency, they successfully built K-31 and K-33. K-31 and K-33 performed amazingly well. They did have some barrier problems at one time but that was corrected and the plants have been producing ever since until they shut them down.

[1:57:51]

Callan, B.: You were saying the addition of those plants was a very significant thing.

Kellogg, D.: Oh yes. The things they learned in K-29 and applied to K-31 and K-33 were the basis of not only K-31 and K-33 but of Portsmouth Plant and particularly the Paducah Plant because the Paducah Plant had only size 31 and 33 equipment installed. So, it was very significantly different. The centrifugal pumps in the top part of the Portsmouth Plant were greatly improved over our pumps. Some of them incorporated two stages in one pump. And, of course, we had a separate compressor for each stage. So, they learned much from the plant that was built here at K-25.

[crew talk]

[End of Interview]