

NASA JOHNSON SPACE CENTER ORAL HISTORY PROJECT

ORAL HISTORY TRANSCRIPT

BETTY K. BURGHDIFF AND RICHARD D. BURGHDIFF
INTERVIEWED BY JENNIFER ROSS-NAZZAL
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ROSS-NAZZAL: Today is June 13th, 2019. This interview with Betty and Dick Burghduff is being conducted at the Clear Lake United Methodist Church for the JSC Oral History Project. The interviewer is Jennifer Ross-Nazzal. Thanks again for taking some time to meet with me. I really really appreciate it. I wanted to start by asking both of you what you thought when you heard Houston would be selected as the home of the new Manned Spacecraft Center. You were living in Virginia at that time, correct?

BETTY BURGHDIFF: Yes.

RICHARD BURGHDIFF: I was at Langley [Research Center, Hampton], Virginia, which was NASA, and a lot of the people that were there were going down here to join, and we had a couple of reasons. One, we're Midwesterners. Two, Betty's sister was a doctor at UTMB [University of Texas Medical Branch] in Galveston, and that put us into contact with her. It really was a no-brainer for us to want to come down with them. We waited until the first wave of them got down, because I was finishing up an experiment, but we got here as soon as we could.

ROSS-NAZZAL: Had you been watching the weather and seeing what was happening down here with Hurricane Carla? Was that weighing on your mind?

BETTY BURGHDUFF: Yes, we always watched it, because my sister lived in Galveston. That didn't seem to bother us though. We were just excited about a new kind of frontier if you will, a new hometown. That was my thoughts I had written down at one time. It was all very impressive and exciting to go to a new hometown.

ROSS-NAZZAL: Dick, did you come out here for a look and see trip? I understand that they allowed some members of the STG [Space Task Group] to come out and take a look around.

RICHARD BURGHDUFF: Yes, we did. I came here, and I stayed a couple nights with Betty's sister and visited. They hadn't even built but one building when I came down, and housing was brand-new. There were very few that had sold yet. It was very brand-new. I like the Midwest, so it appealed to me, and what they were doing. A lot of the NASA offices were down the freeway, they weren't here on site. It was looking like something I really wanted to do.

ROSS-NAZZAL: Was there still any destruction left from Carla when you got here?

RICHARD BURGHDUFF: I don't remember any destruction.

BETTY BURGHDUFF: I don't remember it, no.

ROSS-NAZZAL: What did you tell Betty about the area when you came back? Did you take any photos or any film?

RICHARD BURGHDUFF: I didn't take any photos or film.

BETTY BURGHDUFF: We were just ready to go.

RICHARD BURGHDUFF: Yes, and the kids were pretty young.

BETTY BURGHDUFF: Six and four.

RICHARD BURGHDUFF: We got down here so they could start school. Didn't have to take them out of school, and I think that all worked out well. Our place in Virginia was very close to Langley.

BETTY BURGHDUFF: We lived in Newport News and in Hampton.

RICHARD BURGHDUFF: The wind tunnels, when they went off in the middle of the night, were very noisy; we could hear them pretty good.

BETTY BURGHDUFF: I'd forgotten that.

ROSS-NAZZAL: I bet, I bet. When did you officially move down here?

BETTY BURGHDUFF: Halloween of—I wrote it down—1964. We bought the house and moved into the house, and then we had children at the front door. We had no candy.

ROSS-NAZZAL: Oh my.

BETTY BURGHDUFF: We were not very popular.

RICHARD BURGHDUFF: There weren't very many kids. There weren't very many houses occupied at that point in time either.

BETTY BURGHDUFF: I think there were only two houses that were lived in on our street at the time.

ROSS-NAZZAL: You said you lived on Redway [Lane].

BETTY BURGHDUFF: On Redway. It's the Del Webb planned community.

RICHARD BURGHDUFF: It was still a pretty rustic area. We'd see snakes in the street. We would look out through the front door, and there's cows walking down the street. Cattle was breaking out.

BETTY BURGHDUFF: I don't remember that.

RICHARD BURGHDUFF: It was an interesting time, but it grew up pretty quick.

ROSS-NAZZAL: When you were here initially did you put down earnest money for a house? Did you look at Clear Lake City and decide this is where you wanted to go?

RICHARD BURGHDUFF: I did look at it, but no I did not.

BETTY BURGHDUFF: We actually didn't buy the house till we got here.

ROSS-NAZZAL: Where did you live initially? Did you rent property?

BETTY BURGHDUFF: No, we stayed at the Ramada Inn that was across from Building 1 and we stayed there almost a month. The kids had a good time because there was a swimming pool.

ROSS-NAZZAL: That would be fun.

BETTY BURGHDUFF: But that's no longer there, the old Ramada Inn.

ROSS-NAZZAL: Is that where Space Center Houston is now?

BETTY BURGHDUFF: Across the street. Let's see, what's in there now? I've forgotten.

RICHARD BURGHDUFF: There's that big building where you walk up the stairs. It's a contractor building.

BETTY BURGHDUFF: That's Joan's building, yes.

ROSS-NAZZAL: Is that the SAIC buildings?

RICHARD BURGHDUFF: I think that's what you call it. It's a big stairway going up.

ROSS-NAZZAL: I think I know which ones.

RICHARD BURGHDUFF: Our daughter worked there for a while.

BETTY BURGHDUFF: Somewhere along there is where that hotel was.

RICHARD BURGHDUFF: Yes, there wasn't anything else there.

ROSS-NAZZAL: Besides it being kind of rustic, as you said, what are some of your other memories as you came here? Had you been here before since your sister lived here?

BETTY BURGHDUFF: No, I'd never been here before.

ROSS-NAZZAL: What did you think as you came down the Gulf Freeway?

BETTY BURGHDUFF: It was a frog-choking storm, and we were in a Rambler station wagon with the kids in the back. They didn't have to wear seatbelts. We just thought, "What are we getting

into,” because it was really stormy. We had packed up our house and [there were] just a lot of unknowns.

ROSS-NAZZAL: What about the area itself when you came into Clear Lake? Were you surprised by how the area wasn’t really developed? By the fact that there wasn’t much here, and they were building this massive Center devoted to Apollo?

RICHARD BURGHDUFF: We didn’t even have a grocery store for a little while.

BETTY BURGHDUFF: Yes. They had the original little shopping strip where Aldi is now. That shopping strip. There was a Piggly Wiggly, a Walgreen’s on the corner, and a dime store, a Woolworth’s store. If we wanted any serious shopping, we had to go down the freeway to what they used to call the Sage store. It was a big-box store.

For clothing and that sort of thing, we went downtown to Foley’s, and you rode the elevator up, and you had lunch at the Azalea Room. Kids loved that.

ROSS-NAZZAL: Oh, I bet, kind of an adventure for them.

BETTY BURGHDUFF: Yes. We had to go downtown for shopping for clothes or anything like that.

ROSS-NAZZAL: Was traffic as bad as it is today?

RICHARD BURGHDUFF: It's not got better.

BETTY BURGHDUFF: It was always under construction.

RICHARD BURGHDUFF: Highway 3 was a two-lane road, very poorly lit. I guess the freeway was there, but it wasn't used very much.

BETTY BURGHDUFF: Not as busy.

ROSS-NAZZAL: What about the streets in Oakbrook? Were they paved by that point?

BETTY BURGHDUFF: Oh yes.

RICHARD BURGHDUFF: Yes. Del Webb had paved the streets around the houses that were built, which basically were only a few blocks on each side of the golf course.

BETTY BURGHDUFF: Right, and the rec center was built, everything was built before we got here: the rec center, the golf course. The first neighborhood of course was Oakbrook, and then after two or three years another builder came in and Friendswood [Development Company] left, and then they built with other builders on the other side of the golf course.

ROSS-NAZZAL: You live in a Del Webb house.

BETTY BURGHDUFF: Yes.

RICHARD BURGHDUFF: I think they had like four models, maybe it was five. We just bought one of the models, and that house was replicated every block.

BETTY BURGHDUFF: There were the 100 houses and the 200 houses. The 200 houses were larger, and we thought, "Oh, we don't need that space." But guess what.

ROSS-NAZZAL: With kids it's amazing how much stuff you accumulate.

BETTY BURGHDUFF: We lived in the house 52 years. Same house, the only house we've ever owned.

ROSS-NAZZAL: That must have been hard to say goodbye, a lot of memories.

BETTY BURGHDUFF: Yes, but it was time.

ROSS-NAZZAL: I live in the neighborhood, so I know that. You mentioned there were only about two houses finished on your block when you came. How quickly did the rest of the street fill out?

RICHARD BURGHDUFF: I think within six months to a year all our street was filled.

BETTY BURGHDUFF: The houses were built, they weren't sold. Our next-door neighbor had moved in just before us. Within a year, I think, all the houses were sold.

RICHARD BURGHDUFF: NASA was importing a lot of people at that point.

BETTY BURGHDUFF: They were recruiting, yes.

RICHARD BURGHDUFF: They were filling this up.

ROSS-NAZZAL: Were most of your neighbors affiliated with NASA, or were they affiliated like old-timers, farming, ranching, petrochemical?

RICHARD BURGHDUFF: They were mostly NASA.

BETTY BURGHDUFF: All NASA people.

ROSS-NAZZAL: All NASA, that's unusual.

BETTY BURGHDUFF: When you move away, you don't have any extended family. Then they became your family.

ROSS-NAZZAL: I was going to ask about that, because I think that is very interesting to me, the fact that people moved here, they didn't have anyone to depend on, so they had to depend on

each other. I wondered if you would talk a little bit about that and how that helped to create this Clear Lake area community.

RICHARD BURGHDUFF: You were at home, so you would have a better feel than I would. I was traveling.

BETTY BURGHDUFF: Yes. Most families, most of the time, the mom was home. We had morning coffees with the neighbors and that sort of thing, and I think that helped build a sense of family. We all of course were NASA people, so whatever went on at NASA we were involved in. Then about five or six years later my mother moved from Wisconsin and she had an apartment here in Clear Lake, the Kings Inn or something. What was the name of that place? She had been widowed, so she came to be with the grandkids. That was a big help.

ROSS-NAZZAL: Oh, I bet. When you guys were having morning coffee, I know that the guys were constantly talking shop, even when they were off work. Were you talking about that? Or were you focused on kids, family?

BETTY BURGHDUFF: Just family and kids and that. We all in the background knew that our husbands were traveling or whatever. It was just mostly mom stuff.

ROSS-NAZZAL: How did you juggle that? I wanted to ask you, Dick, too about how much you were traveling, and where you were traveling to. I've heard people were working 60-, 70-hour

workweeks. Were you working those kind of hours? Were you able to spend much time with your family at that point?

RICHARD BURGHDUFF: Probably not as much as I would have liked. But it was so exciting, what we were doing, and new, that the time went fast. Then there was a lot of travel involved. Some of us were heading for Europe for meetings, so you were gone a lot more than you would like to be.

ROSS-NAZZAL: What were you working on that took you to Europe?

RICHARD BURGHDUFF: When the Shuttle was first designed, the Europeans wanted to build a living quarters they'd put in there. NASA decided that, I think there were three or four of us, should go over there and make sure that they built something that would fit in and that had the human factors touch to it, that if you got a red sign that means something or a gray sign. We went over there for a few months and spent some time at a German factory in Bremen, Germany. Germans didn't care for us too much. We bombed the heck out of Bremen in World War II, and they were sort of grouchy.

BETTY BURGHDUFF: Then you traveled to California a lot, to Downey. We'd go with him sometimes, go to Disneyland. We had a good time on those trips.

RICHARD BURGHDUFF: They played all day, and I worked.

ROSS-NAZZAL: I think that works the same way today. I try and do it as well. I probably don't travel as much as you did. You were working on the command module? Was that your assignment?

RICHARD BURGHDUFF: Yes. I was cockpit for the Orbiter.

BETTY BURGHDUFF: Guidance and control.

RICHARD BURGHDUFF: I was in the Guidance and Control Division so everything in the cockpit became my necessity. When we started designing, we went around the country on two different tours to visit different companies to see what modern airplanes were using. We built on that data.

The astronauts that were senior at that time were used to flying mechanical instruments because they were a little older. They weren't used to CRTs [cathode ray tubes]. There was a little bias against CRTs. We built the original cockpit without them, and we added them later on.

ROSS-NAZZAL: I forgot to ask. Where was your original office? You moved here and the Center wasn't built.

RICHARD BURGHDUFF: Original was Building 16.

ROSS-NAZZAL: Were you located off site before the Center officially opened?

BETTY BURGHDUFF: No, it was open by the time we got here.

RICHARD BURGHDUFF: It was open by the time we got here I think. Building 1 was finished, and 16, we were moving in.

BETTY BURGHDUFF: Then you were in 36 for a long time, and then you went to Building 1.

RICHARD BURGHDUFF: That was probably only—36 was ready, and Building 1 is when I ended up—

BETTY BURGHDUFF: In the Space Shuttle. Chief Engineer for the Shuttle.

ROSS-NAZZAL: Nice way to end one's career.

RICHARD BURGHDUFF: It was, it was.

ROSS-NAZZAL: Feather in your cap. I wanted to ask you about your friends in the area. Were most of your friends also from NASA? What sort of things would you get together and do in terms of entertainment?

RICHARD BURGHDUFF: We didn't do much of that.

BETTY BURGHDUFF: Yes, we were pretty much homebodies. We didn't do the splashdown parties and that sort of thing. The only one that I remember is at the Astrodome after the Moon landing, they had a huge event there. Frank Sinatra came and a whole bunch of Hollywood people. I still have the program for that, but we didn't do a lot of partying. We were just homebodies really.

ROSS-NAZZAL: Did you guys bowl or play cards? Trying to think of things that people might do.

RICHARD BURGHDUFF: No. I played tennis after work. Had a couple other people, and we played doubles tennis. Then we got into the track deal at a school over in Webster.

BETTY BURGHDUFF: Webster.

RICHARD BURGHDUFF: We would go over there and run laps just to unwind, but we didn't do much socializing I guess. The church was involved.

BETTY BURGHDUFF: Yes. We had neighbors. We did a couple of block parties and that sort of thing, just neighbors. They were all NASA people anyway.

ROSS-NAZZAL: I was curious about that, because that's something that people don't do today, these block parties, these neighborhood parties. I wondered if you would talk about it, because it

seems to me kind of like a spontaneous thing. Just come out and take your kids and let them play and bring a dish and pass it around.

BETTY BURGHDUFF: That's it. Yes. It was safe. The kids played out in the street during the day. We felt like they were safe.

RICHARD BURGHDUFF: For the block parties we somehow got the street blocked off so you couldn't drive down it.

BETTY BURGHDUFF: We were on a street that was just one block.

RICHARD BURGHDUFF: The rec center was a very active place, and the playgrounds around it.

BETTY BURGHDUFF: Went to the swimming pool, spent the day at the pool.

ROSS-NAZZAL: I think Joan [Robertson, daughter] mentioned either there was just an outdoor pool and then the indoor pool came, or was it the indoor pool first?

BETTY BURGHDUFF: The outside one was first, and then they added the indoor with a new extension there. Yes, the rec center was busy. Of course during the week it was school. That's where our son went to school that first year. He was in first grade with Mr. Royal. Mr. Royal.

RICHARD BURGHDUFF: Then they finished the—

BETTY BURGHDUFF: Then they finished the school and John was in the first class that attended the Clear Lake Elementary. Then through the years our son, our daughter, and our granddaughter went to the same school, and she's doing her practice teaching there.

ROSS-NAZZAL: Oh my gosh.

BETTY BURGHDUFF: So it's really something.

ROSS-NAZZAL: Yes, multigenerational, that's great.

BETTY BURGHDUFF: Yes, and the school has changed a good deal of course.

ROSS-NAZZAL: I bet. It seems like the area has changed. I think Joan, for instance, mentioned that she didn't remember you guys ever locking your door. You pretty much just left things open.

RICHARD BURGHDUFF: You don't dare do that anymore.

ROSS-NAZZAL: No.

BETTY BURGHDUFF: You made an effort to know your neighbors.

RICHARD BURGHDUFF: There were no apartment complexes, for quite some time.

BETTY BURGHDUFF: The only thing they had was where Mom moved into, remember? Those were rental, I'm pretty sure. She was there for about two years, and then she bought a house over on the other side of Highway 3.

ROSS-NAZZAL: You mentioned the Clear Lake Rec Center, which I think is interesting. I've read some of—is it Betty Ulrich?

BETTY BURGHDUFF: Ulrich, yes, she was around the corner from us, yes.

ROSS-NAZZAL: She included a few of the community newsletters [in her papers], and she has letters in there that she wrote home to family and talked about all the different things that were going on at the rec center. Things like Thanksgiving dinners and different parties and events. I wonder if you would talk about some of those that you might recall, even if you didn't participate. It seems like it was a real center of community for at least this area.

BETTY BURGHDUFF: Right. I remember going. She started a library there, and that was of interest to me, because I'm a librarian of course. She started what grew into what is now the Freeman Library. I think the children's room at the Freeman is dedicated in her honor. She lived around the corner from us.

ROSS-NAZZAL: Where was the library in the rec center itself? I know there's a whole bunch of different spaces in the building.

BETTY BURGHDUFF: When Friendswood left there was a sales office that was right on the corner of where the tennis courts are now. They had a portable sales office. It was just a little small building. The Freeman Library started there. Then they made room for it right inside the rec center on one side of the rec center. Then they built the building later. So it started in the sales room.

ROSS-NAZZAL: Did you end up volunteering there?

BETTY BURGHDUFF: No, I didn't, I was busy with my kids. I didn't really get back into library work till my kids got older. I've always been a homebody.

ROSS-NAZZAL: And that's okay. I'm kind of the same way.

BETTY BURGHDUFF: Yes. I had to be there for the kids.

RICHARD BURGHDUFF: I was traveling a lot. It would have been tough to try to do that.

ROSS-NAZZAL: You had also mentioned something in your history that you wrote, Betty, that I thought was fascinating, and that was if you bought a house here, you had a one-year membership to the country club. We moved here in 2003, and I think it had been closed. If you

could talk about that, because that also seems like a space where there might have been a lot of community building going on. Did you ever go over there?

BETTY BURGHDUFF: My mom was a champion golfer, so she was very happy about that. Yes, they gave us a year membership. Every Sunday afternoon they had a buffet. It was a free buffet for the residents. They had a swimming pool, and our kids would go swimming there.

ROSS-NAZZAL: Oh, another pool.

BETTY BURGHDUFF: Yes. It was very nice.

RICHARD BURGHDUFF: It was well kept up. I don't think I played golf but a couple times.

BETTY BURGHDUFF: We're not golfers. My mom was very happy about it, but she was club champion for three years.

ROSS-NAZZAL: The country club, am I correct, was it off of Diana? Or was it off of—Ramada or Reseda? I'm trying to remember which way the roads run.

BETTY BURGHDUFF: Where the rec center is now, you go down the same lot towards Ramada or Reseda.

ROSS-NAZZAL: I always forget those two.

BETTY BURGHDUFF: Yes, I get them mixed up. But anyway it was on that corner where the retention pond is.

ROSS-NAZZAL: I think that was the first phase [of Exploration Green].

BETTY BURGHDUFF: What was interesting, there were rumors that they were going to close the golf course, so they had some kind of a reunion. I remember going to a fancy dinner there. They were closing the golf course. A lot of the original people came to that dinner. Can't remember when that was.

ROSS-NAZZAL: That might have been around when we purchased our house, because I think it was open for a short time, and they made the decision to close it. We bought in 2003, maybe 2004, 2005.

BETTY BURGHDUFF: Something like that yes.

ROSS-NAZZAL: I know we were disappointed, because we liked the golf course. We don't golf, but it was a nice view. Did you guys know any old-timers or people who actually were from Webster, Seabrook, Kemah? Or was it literally all new people for you?

RICHARD BURGHDUFF: Everything was NASA, new people.

BETTY BURGHDUFF: All NASA, new people. Gradually there would be like some Exxon people, but most of the time they were all either NASA or contractor.

ROSS-NAZZAL: That's pretty unusual to have such a brand-new community, I think, in the twentieth century. I kind of think it's almost like a nineteenth century community in a way, because you guys were building this community almost from the ground up. Everything had to be established by all of you. But at the same time you were united by this one goal, which I think is really interesting.

BETTY BURGHDUFF: The churches—that was another place to connect with people, the church of course. When we moved here, Dick was Lutheran, and so there was House of Prayer Lutheran Church we belonged to.

RICHARD BURGHDUFF: Which was only block from the house.

BETTY BURGHDUFF: As charter member. Yes. Dunkin' Donuts is where the Lutheran church used to be. We were there five years. Then there were some problems, and we moved to this church now. A lot of our friends, of course, are here at this church.

ROSS-NAZZAL: I was curious about the fact that there were so many families in this area too, because I think that helps to bring together people when you have young children running around. Like-minded people, and comparing my kid is doing this, is your kid doing the same

thing. Or just having parties or just getting together to play. Although I think it's a little different these days. I wonder how that might have contributed to building that community.

BETTY BURGHDUFF: You knew your children's classmates in school, and we had room mothers, we'd have those connections. There were block mothers that when the kids were walking home from school you had a little sign in the window that you were a block mother, and that sort of thing.

RICHARD BURGHDUFF: Safety if you had to run, you could run to one of those signs.

BETTY BURGHDUFF: That wouldn't work nowadays.

RICHARD BURGHDUFF: No.

ROSS-NAZZAL: You were a block mom, right? That's what Joan mentioned.

BETTY BURGHDUFF: Yes. You knew all the neighborhood kids.

ROSS-NAZZAL: You mentioned that Clear Lake City Elementary had school at the rec center one year.

BETTY BURGHDUFF: One year, yes.

ROSS-NAZZAL: Did they house the kids in the gym? Or was it in some of the—

BETTY BURGHDUFF: Where the office buildings are now. During the day, I don't know how many grades they had. John was in first grade. Then after school there was a dance school, Jill Rauscher's dance school. Her mother actually. My daughter started dance there when she was six or seven maybe. Jill is still here in the community. My granddaughter teaches in that school now.

ROSS-NAZZAL: Oh, does she?

BETTY BURGHDUFF: Yes, my granddaughter is 21, she'll be, and she's one of the instructors at the school.

ROSS-NAZZAL: Houston really became your home.

RICHARD BURGHDUFF: Oh yes.

BETTY BURGHDUFF: Oh yes.

ROSS-NAZZAL: You talked about wanting to be part of a new hometown, and it really did for both of you.

RICHARD BURGHDUFF: We were far enough from Houston proper that we were like a little community. We had the advantages of the big stores downtown but we had the advantage of the neighborhood.

BETTY BURGHDUFF: Small town.

RICHARD BURGHDUFF: Originally after we moved in, one of the things that was always interesting is the cattle would get away from wherever they were fenced off and go walking down the street in front of your house. It was interesting to see the country and the city intermix there.

ROSS-NAZZAL: That is interesting. You would not see that today.

BETTY BURGHDUFF: No, all kinds of rules and things.

RICHARD BURGHDUFF: And snakes.

ROSS-NAZZAL: And snakes. Did you guys have a lot of problems with insects? I was curious about that. Was that something you had issues with?

BETTY BURGHDUFF: We came from the Midwest, where there are no bugs outside of mosquitoes. One of the first few nights in our house we had a roach problem, and we didn't know what they were.

RICHARD BURGHDUFF: One flew off. The little sucker jumped and landed on her.

BETTY BURGHDUFF: In my hair.

RICHARD BURGHDUFF: In the middle of the night.

ROSS-NAZZAL: Oh, yuck.

BETTY BURGHDUFF: That was new for us.

ROSS-NAZZAL: I can imagine lots of Raid.

RICHARD BURGHDUFF: We never had any trouble with snakes, although we found a dead one every once in a while in the street. They didn't learn how to cross the street, I guess.

ROSS-NAZZAL: Were you seeing other animals like alligators or skunks?

RICHARD BURGHDUFF: There's an alligator that's still there. I think he's still there. The ditch by the golf course.

BETTY BURGHDUFF: The kids going to school, most kids walked to school. They'd go over the bridge.

RICHARD BURGHDUFF: Go over the bridge with the alligator.

BETTY BURGHDUFF: That was a concern.

RICHARD BURGHDUFF: Probably not the smartest thing in the world.

ROSS-NAZZAL: That's unusual.

RICHARD BURGHDUFF: There's coyotes that roam the present golf course at night still to this day, people that live on the course, and then they got the wild hogs.

BETTY BURGHDUFF: That's further down.

RICHARD BURGHDUFF: Yes, it's not where our house was, but it was further towards the other side, that still dig up neighborhood yards.

ROSS-NAZZAL: I did not know that.

BETTY BURGHDUFF: Yes, they still have them.

RICHARD BURGHDUFF: One day that new shopping center, what is it, HEB?

BETTY BURGHDUFF: HEB is up that way.

RICHARD BURGHDUFF: We were driving up there and a herd of—if they're herds—about five or six went running across the road. They had been messing around where the houses were right there.

BETTY BURGHDUFF: They tear up the landscaping and everything.

ROSS-NAZZAL: Oh, well, that's good to know.

RICHARD BURGHDUFF: That was just five years ago or so.

ROSS-NAZZAL: I would have thought by now most of the wildlife was in another area.

RICHARD BURGHDUFF: I think those hogs are very conducive to reproduction.

ROSS-NAZZAL: I wanted to ask a little bit more about the schools. You volunteered, Betty, in the schools as well?

BETTY BURGHDUFF: Yes, in the library.

ROSS-NAZZAL: Do you know was there an emphasis at all on space? Was there any interest in space books or any space programs you recall? Maybe, Dick, did you ever go over to the school and talk about what you were doing at NASA? Or were you too busy?

BETTY BURGHDUFF: I think it was just a cultural thing that everybody knew about it, and so we just sort of—"Oh, your dad is an astronaut, so what."

RICHARD BURGHDUFF: Most people knew each other from work.

BETTY BURGHDUFF: Families.

RICHARD BURGHDUFF: One of my bosses was right down the street. I think it was just sort of normal. We worked, we came home, and then we did other stuff.

ROSS-NAZZAL: So no big deal for folks. No differentiation for the kids between I'm an astronaut kid while your dad is an engineer.

RICHARD BURGHDUFF: I don't think so.

BETTY BURGHDUFF: I don't think so. I was in a bridge club for a while, and two of the ladies were astronauts' wives, two or three of them I remember. But then I got tired of bridge so I dropped out.

ROSS-NAZZAL: I was going to ask about that, because that seems to be a popular card game. People don't really play bridge anymore. But back then I think people did a lot more.

BETTY BURGHDUFF: Yes. At the Crossings they have some big bridge players there, where we live now, because they're all our age. We have a cardroom.

ROSS-NAZZAL: Oh, you have a cardroom?

BETTY BURGHDUFF: Yes.

RICHARD BURGHDUFF: There's a lot of sheepshead players out in Rockwell Downey, they used to have sheepshead games out there. That's a card game.

BETTY BURGHDUFF: That's a Midwestern card game.

RICHARD BURGHDUFF: It's a German card game. One of the contractors that was supporting Rockwell International was AC Electronics, is that what they're called?

BETTY BURGHDUFF: Yes.

RICHARD BURGHDUFF: They were from Milwaukee.

BETTY BURGHDUFF: That's where he was from.

RICHARD BURGHDUFF: Where we grew up, or I grew up.

BETTY BURGHDUFF: Where he grew up, yes.

RICHARD BURGHDUFF: We got together whenever I was out there and played cards in the evening.

ROSS-NAZZAL: Did they ever bring you anything from the Midwest? My in-laws and my husband is originally from Wisconsin.

RICHARD BURGHDUFF: Oh.

BETTY BURGHDUFF: Oh, really.

ROSS-NAZZAL: Yes. I'm trying to think of the dessert. There's a dessert out there they stock up on. [A kringle].

RICHARD BURGHDUFF: Sounds German or something.

BETTY BURGHDUFF: Sounds German.

RICHARD BURGHDUFF: I grew up in a Norwegian house with all Norwegian stuff.

BETTY BURGHDUFF: He's Norwegian.

RICHARD BURGHDUFF: Mine was all Norwegian.

ROSS-NAZZAL: Did they bring you anything?

RICHARD BURGHDUFF: Lutefisk.

BETTY BURGHDUFF: No, that's another thing.

ROSS-NAZZAL: Doesn't sound like Betty liked that.

BETTY BURGHDUFF: No, it's terrible.

ROSS-NAZZAL: I wanted to ask about childcare because even in your history you talk about how it was a real issue even for the church because there were so many kids that the church wasn't necessarily equipped to handle it. How did the moms handle it in a day and age when day care really wasn't a thing? Did you rely on all the other mothers?

BETTY BURGHDUFF: Number one is not as many mothers were working. Most moms were home. Then slowly, like my mom that moved here, slowly their parents would come down here

and retire. In the church, like I wrote about in the history, that's how Mother's Day Out started, because other mothers would help other mothers.

ROSS-NAZZAL: Was that something that you were involved in? You were a newer member at that point, but was that something that you joined in on?

BETTY BURGHDUFF: Yes. As our kids got a little bit older, as teenagers, then they got involved in the Mother's Day Out program, which was childcare. There weren't any commercial childcare places. There weren't any. You either shared with your friends or your church.

ROSS-NAZZAL: It's a complication, if you need to go somewhere and really need help.

BETTY BURGHDUFF: Yes. If you had a doctor's appointment, or somebody gets sick or something.

RICHARD BURGHDUFF: There weren't too many doctors around either.

BETTY BURGHDUFF: No.

ROSS-NAZZAL: How did you find out who to go to? If you were all new, how did you figure out who was the best person? Did you have any options in the area?

BETTY BURGHDUFF: Not too many options.

RICHARD BURGHDUFF: One.

BETTY BURGHDUFF: Clear Creek Clinic in League City had three or four doctors. We stayed with them till this past year. Things changed in the practice.

RICHARD BURGHDUFF: We didn't have any hospitals in the area.

BETTY BURGHDUFF: No hospitals, no. You had to go into Houston if you were seriously ill. You had to go to Houston.

ROSS-NAZZAL: Did you ever go down to Galveston for medical care? Or primarily you just went up into Houston?

RICHARD BURGHDUFF: I don't think we ever went down there.

BETTY BURGHDUFF: I don't think we did.

RICHARD BURGHDUFF: NASA had their own set of doctors, so the employees got yearly physicals.

BETTY BURGHDUFF: But not the families.

RICHARD BURGHDUFF: Not the families. But the doctors used you as guinea pigs. We were on treadmills just like a chipmunk or something with masks on and all that stuff.

ROSS-NAZZAL: Oh, that's fascinating.

RICHARD BURGHDUFF: I guess we were the base[line] for astronauts later on.

ROSS-NAZZAL: The baseline, oh, that's funny. That's a nice perk for being a civil servant, that you have that access to that medical care.

RICHARD BURGHDUFF: Matter of fact, Joan was helping. She was doing that at NASA. I'm sure she told you. She took blood from me many times.

ROSS-NAZZAL: They've got your data? I wanted to ask you about neighborhood traditions. I've heard in Timber Cove for Apollo 8 they started putting out the luminaries, and they do a few other things. Were there any traditions in Oakbrook around the space program, or maybe just holidays like Fourth of July or Christmas, Thanksgiving? I think Joan mentioned some parades that you guys would have.

BETTY BURGHDUFF: Oh yes, I think that was around—I don't know what the occasion was. Yes, they had some small neighborhood parades, and our granddaughter was on the float, stuff like that.

RICHARD BURGHDUFF: We used to have block parties that the police would let us.

BETTY BURGHDUFF: There's one neighborhood over where Hal [Harold A.] Loden lives. They had a lot of traditions on Bowline, I remember. You might want to talk to him too. Hal Loden. He is a member here, a charter member of this church.

RICHARD BURGHDUFF: He was a flight controller. Different viewpoint than engineers.

ROSS-NAZZAL: Oh, absolutely, yes, I like talking to different people, because people have different memories of what things were like and different experiences as well. Did you guys ever see any tour buses in your area? I know that there were some that came down. They were looking for astronaut homes. My understanding, there were a few astronauts who lived in Clear Lake.

RICHARD BURGHDUFF: I don't remember any tour buses.

BETTY BURGHDUFF: No.

RICHARD BURGHDUFF: We were on a one-block street, so that wouldn't be a major traffic route at all.

BETTY BURGHDUFF: I'm not sure if we had any neighbors that were astronauts in Oakbrook. I don't think so. The early astronauts came at a time when they'd move into Timber Cove or some of those neighborhoods over there, so I don't think we had any in our neighborhood.

RICHARD BURGHDUFF: I don't remember.

ROSS-NAZZAL: I think I had seen in a few of the newsletters. Unfortunately didn't keep a complete set. It's just a few in there. They mentioned a few of the astronauts were—can't remember the names. They probably came like in '66 or somewhere back there. They probably weren't flying much in Apollo. I wanted to ask you, Dick, if you had a chance to be active in the community much at all in the '60s. Did you join any groups? Or did you help your kids with sport leagues or Scouts, anything like that?

RICHARD BURGHDUFF: No. I had an awful lot of travel, so travel and church here. I didn't do anything.

BETTY BURGHDUFF: John was an Indian Guide for a while, and he did that for a while.

RICHARD BURGHDUFF: Yes, we did Indian Guides.

BETTY BURGHDUFF: I did Girl Scouts.

RICHARD BURGHDUFF: We camped a couple times.

BETTY BURGHDUFF: Indian Guides was for sons and fathers only. I don't think they exist anymore.

RICHARD BURGHDUFF: Probably not.

ROSS-NAZZAL: I've never heard of it.

BETTY BURGHDUFF: They were like a Scout kind of thing, but the emphasis was father-son. I did Brownies and Girl Scouts with my daughter.

ROSS-NAZZAL: Were you a troop leader?

BETTY BURGHDUFF: I was a Brownie leader.

ROSS-NAZZAL: That's nice that you were able to do that. Were you active in the Clear Lake Women's Society of Christian Service? I've read about that in your history as well.

BETTY BURGHDUFF: Yes. It's now United Methodist Women. Yes, I was real active.

ROSS-NAZZAL: Would you talk about the work that you did? I know you joined a little later. Would you talk about some of the volunteer work that you did during the '60s?

BETTY BURGHDUFF: When we moved to this church I started the library. The Brownie troop met here, and I was room mother for many years at school. Then when both of the granddaughters started school, I was a room mother for both of them as well. They don't do much of that anymore, I don't think, where they have parties in a classroom and that sort of thing.

RICHARD BURGHDUFF: What about the library? Did you get in the school library? I did later on.

BETTY BURGHDUFF: Yes, we both volunteered in the Clear Lake Elementary School library. Did story time and that sort of thing.

ROSS-NAZZAL: I was curious about the teachers at Clear Lake City Elementary. Were they primarily wives of people who worked at NASA? Do you recall? It seems like so many people have those ties.

RICHARD BURGHDUFF: I don't remember wives. Clear Creek School District is pretty big.

BETTY BURGHDUFF: Yes, it was well established in League City and that area. I don't remember.

RICHARD BURGHDUFF: Can't think of any.

BETTY BURGHDUFF: They had some really good teachers.

ROSS-NAZZAL: What did you guys think of the educational system when you got here? Were you happy with it? Was it comparable to what you had in Virginia?

BETTY BURGHDUFF: It was better. John just went to one year of school in Virginia, but the school system here was more advanced. I think coming from educated parents, it was a different level of what they expected from schools.

ROSS-NAZZAL: You mentioned you went to the House of Prayer, because Dick, you're Lutheran, or you were Lutheran, now you're Methodist. What attracted you to the church besides the fact that you were Lutheran?

RICHARD BURGHDUFF: It was only one block away from the house.

BETTY BURGHDUFF: At that time the ministers would come to your home and visit with you. It was different than now.

RICHARD BURGHDUFF: The minister lived one block away.

BETTY BURGHDUFF: One block over, yes. They were a pretty close community.

RICHARD BURGHDUFF: Of course a large percentage of the people in the church were—

BETTY BURGHDUFF: From somewhere else.

RICHARD BURGHDUFF: Came from somewhere else and were with the same program we were with. That helped.

ROSS-NAZZAL: What attracted you to the Clear Lake United Methodist Church?

BETTY BURGHDUFF: The Lutheran church was having some serious problems with leadership, and we kept hearing our neighbors behind us and next door, that there was a good youth program here. We thought this was where we wanted to bring our family, because of the children's programs and youth program.

RICHARD BURGHDUFF: The Lutheran church, that particular church, was struggling at that point. Its minister had walked off, so they had some problems.

BETTY BURGHDUFF: We don't need to get into that.

ROSS-NAZZAL: It's fine.

RICHARD BURGHDUFF: The new church gave us a new start, and gave her a library to start.

BETTY BURGHDUFF: We got really involved. He ran the sound system and [became] head usher and that sort of thing.

RICHARD BURGHDUFF: Head usher and all that. That's gone on for a long time.

ROSS-NAZZAL: I wonder if you can talk about how the space program, Apollo, NASA, what have you impacted the churches, in what ways.

BETTY BURGHDUFF: Churches wouldn't be here without it. The whole foundation is NASA people I think. We've gotten, of course, diversified over the years. I think the soul if you will of the church was NASA.

RICHARD BURGHDUFF: That brought a whole flock of pretty highly educated folks in. It's not a country church. It's a fairly highly educated church.

BETTY BURGHDUFF: [Higher] expectations too.

ROSS-NAZZAL: Can you expand on what you mean by that, Dick? Having these highly educated folks come in. What impact does that have on the church compared to more of a rural [church].

RICHARD BURGHDUFF: I think they probably question the church, make the church explain things better. Like the group that was meeting over here, they get together. There's a lot of ex-NASA people there. They had a common core. They travel periodically to different places together, more fellowship. That was something that a lot of people had in common.

ROSS-NAZZAL: There were a lot of joyous times in the '60s, a lot of firsts for the space program: first rendezvous, docking, first lunar landing. I wonder if you would talk about the role the churches played in some of those events, if anything really stands out to you in terms of how things might have been celebrated or just captured within the church.

RICHARD BURGHDUFF: I think we showed you the memorabilia we had out here the last time. I think the church is so different now because it's so broad. Way back then almost everyone was part of NASA or a contractor. It was like a college fellowship type thing.

BETTY BURGHDUFF: When things went bad we also pulled together. When the accidents happened. We had one of the services here for one of the astronauts that died.

RICHARD BURGHDUFF: That was an interesting one. I was head usher at the time and sound guy. We were planning how we were going to do this. NASA security came and they said that it's going to be very difficult to control things, who's coming and all that.

BETTY BURGHDUFF: Securitywise.

RICHARD BURGHDUFF: We never thought of that.

ROSS-NAZZAL: Do you recall which event that was for?

BETTY BURGHDUFF: Mike. Gosh. Can't think of his name now.

ROSS-NAZZAL: Was it from STS-107? Or was it *Challenger*? Mike [Michael J.] Smith?

BETTY BURGHDUFF: The first one.

RICHARD BURGHDUFF: *Challenger*.

BETTY BURGHDUFF: *Challenger*, was it? Or was it the second one?

RICHARD BURGHDUFF: I'm not too sure whether the astronaut that was being—

BETTY BURGHDUFF: Mike.

RICHARD BURGHDUFF: —buried was actually from our church or we were just the biggest church in the area that had space.

BETTY BURGHDUFF: But his son was in MYF [Methodist Youth Fellowship] though. That's what their connection was.

RICHARD BURGHDUFF: That's true. But they ended up canceling it anyway, didn't they?

BETTY BURGHDUFF: We had a service for this guy, because I have a recording of it.

RICHARD BURGHDUFF: Somehow they downplayed it so we wouldn't have a flock of people.

BETTY BURGHDUFF: And the press, I can remember.

RICHARD BURGHDUFF: Press was obnoxious sometimes.

BETTY BURGHDUFF: They'd find out that somebody in your church is—something's happened. They just descend and they just really destroy privacy. We had a string of teen suicides in Clear Lake. A number of the funerals were here, and the press was awful.

ROSS-NAZZAL: That was one of my questions for you, because you did have a couple of astronauts that were on pretty important missions. The first was Al [Alan L.] Bean, who was a charter member here. By then you both were members, I believe. I was wondering what was the media attention like. Do you remember the media coming to service or talking to members about Al Bean?

BETTY BURGHDUFF: Fred [W.] Haise. I don't think we were that involved in the church yet. We were kind of not quite involved right away. Fred Haise was one of the early ones.

RICHARD BURGHDUFF: I do not remember ever having a mob of photographer press in the church service. That might be one, if you talk to Hal Loden, he might know a little bit about that.

ROSS-NAZZAL: I was just curious. The church and the press, it doesn't seem like it meshes very well.

RICHARD BURGHDUFF: It does not.

ROSS-NAZZAL: The sanctuary and things like that.

BETTY BURGHDUFF: Because when you're having a funeral it should be a personal worship time and not flashbulbs.

ROSS-NAZZAL: Right, but I can almost see the media showing up. The Webster Presbyterian Church talked about how when they were having Lunar Communion, for instance, the media just showed up and they were there. I can't imagine how distracting that must have been for the congregation, for that special moment, to have media there.

BETTY BURGHDUFF: Yes. Private moment.

ROSS-NAZZAL: I wanted to ask you about your memories of the Apollo 1 fire and the impact that it had on the community here.

RICHARD BURGHDUFF: That was emotional.

BETTY BURGHDUFF: Yes. I think the engineers took it very personal, because they feel like what could we have done better. The same thing for the other two accidents too. It really hit hard. I remember we were in a staff meeting when the last accident happened. Benita Bridges called me and she said, "Something terrible has happened," Roy Bridges's wife. He was one of the astronauts. She worked with me in the library. It was very personal.

RICHARD BURGHDUFF: The Cape [Kennedy, Florida], for the fire, we had a closed-door meeting, and they played the tapes of the sound of what was going on. It was horrible.

ROSS-NAZZAL: That must have been. Did you help with the investigation?

RICHARD BURGHDUFF: No. I think they knew what it was rather quickly, so it wasn't anything that I had worked on, so no.

ROSS-NAZZAL: What impact do you think it had on the community here in Clear Lake, this community that was so focused on Apollo and getting to the Moon?

RICHARD BURGHDUFF: I think it was a wakeup call in a way because everything had been working along smoothly, and suddenly this happens, and I think it awakened people that that's not particularly a safe job.

BETTY BURGHDUFF: On a human level, you get so involved in engineering, this kind of mindset, but then when you see it, it's a human level, that someone has died. You realize the responsibility you have.

RICHARD BURGHDUFF: Even like the other accidents that were caused by ice coming off of parts, causing damage, even though they weren't anything you worked on or were responsible for, it was still devastating.

ROSS-NAZZAL: I can imagine. Like Betty said, being an engineer especially.

BETTY BURGHDUFF: Yes. "What if I'd done this? What if I'd done that?"

ROSS-NAZZAL: Did you know the crew at all? Had you worked with [Roger B.] Chaffee or Gus [Virgil I. Grissom]?

RICHARD BURGHDUFF: Yes. For a while there a group of the astronauts were surveying different places and different technologies, and I was involved with that. I would travel on a little company puddle jumper, and they would fly their jets in. We would visit whatever company it was. San Diego and LA and stuff like that.

The astronauts would fly in their planes, and they'd come in with their jumpsuits on. They were like rock stars walking through the place, and we'd just sort of follow along. It was neat. When we decided to go to the glass cockpit where you put a CRT in front of them.

ROSS-NAZZAL: Those are beautiful.

RICHARD BURGHDUFF: That wasn't an easy thing to do because there was the people who didn't like the term, were afraid that the press would be crazy enough to push where people would think it's just glass, it's going to break. I had a lot to do with getting that involved. I went to a congressional committee to get the money to change the cockpit. We eventually could not call it glass cockpit, and we came up with another name for it: multifunction electronic display subsystem.

ROSS-NAZZAL: Because that rolls off the tongue so much easier.

RICHARD BURGHDUFF: That made the congressional committee happy, they didn't like the other terms. The astronauts by then were flying jets that had them in there.

ROSS-NAZZAL: Right, they were used to them.

RICHARD BURGHDUFF: They were used to them, and it sure did help.

ROSS-NAZZAL: We have this interview from the '60s with a guy from procurement, and he talks about how really there was space fever going on here in the city of Houston. How people wanted autographs from even him. He was a procurement guy. He showed up to some Halloween party, and somebody wanted an autograph from him. He was really embarrassed, because he's not an astronaut. I wondered, did you ever encounter that, Dick? Were people

enamored of you because you worked at NASA either here in Houston or wherever you were traveling?

BETTY BURGHDUFF: It's interesting. When we travel, you talk around the dinner table. People are still impressed that you were with NASA and want to know all about it. I don't think you ever had anybody—

RICHARD BURGHDUFF: I don't think anyone's ever asked me for an autograph.

BETTY BURGHDUFF: But there's a certain—

RICHARD BURGHDUFF: There's a lot of difference between an astronaut and an engineer, and astronauts, rightly so, they get all the publicity. I could see where you'd want to get something from them. But an engineer?

BETTY BURGHDUFF: I noticed the last couple trips we've taken, everybody shares what they do for a living, and they talk about NASA, then everybody's very interested still. It's good that people still believe in the mission.

RICHARD BURGHDUFF: Even when I spent that three months in Germany, the hotel people were interested. There were five or seven of us, and there was a lot of talking about things. They'd ask questions. We took trolleys from there to the plant we were at. They fed us lunch every day. Never had a lunch before where the employees were drinking beer out of kegs.

ROSS-NAZZAL: Not something you'd see here.

RICHARD BURGHDUFF: I think there's still some interest in that.

ROSS-NAZZAL: I think NASA evokes great memories, and people are amazed by what NASA accomplished.

RICHARD BURGHDUFF: NASA seems to be heading into having private companies do stuff. They got many people launching things. I think it's going to lose some of its allure.

BETTY BURGHDUFF: Glamour or whatever you want to call it.

ROSS-NAZZAL: Things are changing, that's for sure.

RICHARD BURGHDUFF: You can also probably make more money going to work for one of them.

BETTY BURGHDUFF: Yes, you're not at the mercy of government.

ROSS-NAZZAL: Congress.

RICHARD BURGHDUFF: One thing that I do remember very vividly was when I was ready to retire we went back down to KSC [Kennedy Space Center, Florida], and the people I'd worked

with all this time arranged for us and our daughter and our granddaughter to go out to the launchpad and to drive up to it and walk underneath an [Orbiter] that was on the pad and look up.

BETTY BURGHDUFF: They won't let you do that anymore.

RICHARD BURGHDUFF: That probably wasn't something they should have done back then. I always tell my older granddaughter that you're one of the very few people who ever had a chance to see that.

ROSS-NAZZAL: That's very unique. I did want to ask about a couple more missions, one being Apollo 11. It's one of those events. You remember where you were and what you were doing at the time. I wonder where you were and what your emotions were like at that point. You'd been working so hard on the Program.

RICHARD BURGHDUFF: Emotions were high. Was I at Langley?

BETTY BURGHDUFF: No, we were here, because I remember sitting on the bed with the kids watching the Moon landing.

RICHARD BURGHDUFF: I was probably at work then.

ROSS-NAZZAL: Oh, you were at work.

BETTY BURGHDUFF: Yes.

RICHARD BURGHDUFF: What you don't see often in the press, in Mission Evaluation [Room], the MER, where everyone sees, it's on television, there's another room in that building with all the equipment that the engineering people sit at consoles and look at data coming in. It's a fairly good size room. I was back in there, and you were getting all the data which was then being fed to mission control. That was an exciting time period.

ROSS-NAZZAL: But you didn't have any visuals at that point. Betty at least was watching.

RICHARD BURGHDUFF: Yes, she had television. We were looking at dials.

ROSS-NAZZAL: You think it was a little different experience, since you were just hearing what was happening?

RICHARD BURGHDUFF: I think we were all pretty much the same excitement. We just couldn't see much.

ROSS-NAZZAL: You see the images from the MOCR [Mission Operations Control Room] and you see the flag waving and the cigars. Was that happening in the back rooms as well?

RICHARD BURGHDUFF: We did have a TV set in there. Most of the guys, and like I said I was engineering, and my job was I was in the Project Office, and make sure that they were all doing

their jobs. Most people were looking at meters and dials and their equipment, make sure it was all working. But I'm sure that they all took sneak peeks at the television at the end of the room. I know I did.

ROSS-NAZZAL: What did you think, Betty? What were your feelings?

BETTY BURGHDUFF: Awestruck, really, to think that they'd accomplished what they set out to do. Of course we all knew how hard it was to pull that off.

RICHARD BURGHDUFF: I don't think there'll ever be another one like that. Even when we go back to the Moon, it'll be exciting, but it won't be the first.

ROSS-NAZZAL: Things have changed.

BETTY BURGHDUFF: We kind of take things more for granted. "Oh, go to the Moon, so what."

ROSS-NAZZAL: Exactly. We've been there.

RICHARD BURGHDUFF: How much does it cost? That's what they worry about. We could be putting that money to doing something else.

BETTY BURGHDUFF: Social things, yes.

ROSS-NAZZAL: You mentioned you didn't go to splashdown parties. Was there any sort of celebration? You mentioned the Astrodome that you guys went to for that event. Was that a NASA-sponsored event, or was that more city of Houston?

BETTY BURGHDUFF: I don't know, it was kind of spontaneous.

RICHARD BURGHDUFF: I think it was a Houston-sponsored event.

BETTY BURGHDUFF: I think it was Houston, yes.

RICHARD BURGHDUFF: Spur-of-the-moment.

BETTY BURGHDUFF: Then they had a ticker-tape parade when they came home. I remember we took the kids, and we were in some store's parking garage looking down on the ticker-tape parade. It was really something. I've got pictures of that somewhere.

ROSS-NAZZAL: That'd be interesting.

BETTY BURGHDUFF: Our kids were—

RICHARD BURGHDUFF: Pretty young.

BETTY BURGHDUFF: Pretty young, but they were very involved.

ROSS-NAZZAL: What did your kids think about the landing? I was young when the Space Shuttle first launched, but I didn't have all the context. I'm wondering since your kids had some context, Dad was working on it, what was their reaction? What was their feeling? Do you recall it being anything notable?

BETTY BURGHDUFF: Yes, they were always very interested. Of course Joan works for NASA now. Our son, he's a math professor at Lone Star College. He's dean of math. Very scientifically minded kids, both of them.

ROSS-NAZZAL: You think working in Apollo and working for NASA had that sort of impact?

RICHARD BURGHDUFF: They've been around technical stuff their whole lives.

BETTY BURGHDUFF: A STEM [Science, Technology, Engineering, and Math] student that they call them today. They didn't have a name for it then. But they were very interested in math and physics and chemistry and that sort of thing.

ROSS-NAZZAL: Did the ministers ever have any sermons or anything focused on missions when you were going to church?

BETTY BURGHDUFF: Oh yes. Our current minister is enamored with the space program.

RICHARD BURGHDUFF: He is. He's a space nut. He keeps giving me big books on space that he buys and leaves.

BETTY BURGHDUFF: He's been to launches as well. I think all the ministers have had an admiration for the program and a spiritual support, because we went to a couple of launches at the Cape. I don't know if they still do or not, but they used to have a prayer breakfast day before launch. Of course the astronaut was not there, but their families were. There was a spiritual need I think, because of the possible danger. The whole family [was] involved, [because] they might not come home.

RICHARD BURGHDUFF: Our present minister has gone down to several launches.

BETTY BURGHDUFF: Buddy Miller, we went, he did the prayer service for that. Almost every minister has appreciated what the program is about on a human level.

ROSS-NAZZAL: It's not just rockets; it's human beings flying up there.

BETTY BURGHDUFF: Right, and their families. If something happens, their families need spiritual support.

ROSS-NAZZAL: I wondered about that. Do you know if the church was providing some sort of support to Al Bean's family or Fred Haise's family? I know you said you weren't as involved then. But is that something that you recall? The church calling for [help]?

RICHARD BURGHDUFF: I would be surprised if it wasn't.

BETTY BURGHDUFF: Right. I think I have in some of the newsletters prayers during a flight for different astronauts. Not necessarily if they were members here either, but for everyone that's involved.

ROSS-NAZZAL: I find that interesting. It's almost like how NASA has made its mark on the churches. Even though you're not a member, you're still vitally important to us.

BETTY BURGHDUFF: Right.

ROSS-NAZZAL: You showed me last time I was here the banner that's in your sanctuary, which by the way I shared with Amy [Sue Bean] and Sue [Bean] because I wanted to make sure when I have a chance to talk with Sue that we could talk about it, because I thought that's so interesting, and obviously share the information with you.

Were you here when they brought that to the church? Do you have any memories of that moment? Was that a big deal?

BETTY BURGHDUFF: I don't remember that.

RICHARD BURGHDUFF: I don't remember whether there was a service that did anything.

BETTY BURGHDUFF: Ceremony or anything like that.

RICHARD BURGHDUFF: I remember they were installing the case so people couldn't easily get in and steal it.

BETTY BURGHDUFF: Maybe Hal Loden would remember that. I don't know.

ROSS-NAZZAL: I also sent them the photo because I really want to ask them about that, because it's so unique, such a unique part of your history, and the relationship and ties between the astronauts and church and NASA.

RICHARD BURGHDUFF: I don't know that we do a very good job of letting new members that are joining even know that it's there, which is probably something we may want to discuss with the ministers someday.

ROSS-NAZZAL: It's a beautiful piece. It's very unusual. We don't have any astronauts that go to my church. Did you guys ever enjoy the lake when you were here initially? Clear Lake. I've heard a lot of people say they went boating or did waterskiing.

RICHARD BURGHDUFF: We did not do that.

BETTY BURGHDUFF: We didn't. Our next-door neighbor had a boat. They took us fishing.

RICHARD BURGHDUFF: He took us fishing a few times.

BETTY BURGHDUFF: He was a NASA guy too.

RICHARD BURGHDUFF: I forgot about that. Otherwise no.

BETTY BURGHDUFF: Not really.

ROSS-NAZZAL: You mentioned going to launches. Did you ever see any Apollo, or were those Shuttle launches that you went to down at the Cape?

BETTY BURGHDUFF: Gosh, we went several times. I don't remember which ones.

RICHARD BURGHDUFF: They're probably all Shuttle. I don't remember if we—we went a lot of times, because one time our kids were only—well, that's when we were stationed at Langley.

BETTY BURGHDUFF: That was prior to the fire. That was before Apollo.

RICHARD BURGHDUFF: We went down. That was before Apollo. That was before Gemini.

BETTY BURGHDUFF: We went to several Shuttle launches.

RICHARD BURGHDUFF: A couple of them I was working. I thought we went once or twice just for fun too.

BETTY BURGHDUFF: Yes, that's when we took our granddaughter with us.

ROSS-NAZZAL: When she got to walk underneath the Orbiter—that's a unique treat. You mentioned coming down here in your Rambler. Did you only have one car initially?

BETTY BURGHDUFF: Yes.

ROSS-NAZZAL: You ended up buying a second.

BETTY BURGHDUFF: It was a long time. I really didn't drive much till we lived here.

RICHARD BURGHDUFF: Everything was right here.

BETTY BURGHDUFF: That Rambler was fun.

RICHARD BURGHDUFF: They'd be in trouble with the law now because the kids used to sleep in the back. There's no straps to hold them in back there.

ROSS-NAZZAL: Would you take Dick to work then so you would have the car during the day?

BETTY BURGHDUFF: I didn't need a car then. We were just home most of the time. It wasn't till the kids started junior high and high school that I would need a car much.

RICHARD BURGHDUFF: I used to bike to work once in a while and that gave you a car, but we never had too many things that weren't right in the neighborhood.

ROSS-NAZZAL: You would just walk over to the grocery store you mentioned and Woolworth's?

BETTY BURGHDUFF: Yes. Rec center.

ROSS-NAZZAL: I guess things weren't that far from your house. I actually went and drove down. After I talked with Joan I went and drove down the street. I wanted to see exactly where Redway was. You were very close. You were almost behind the elementary school. It's pretty close.

RICHARD BURGHDUFF: Across the golf course.

BETTY BURGHDUFF: Yes. They walked to school.

RICHARD BURGHDUFF: Nowadays it's hardly safe to walk to school.

ROSS-NAZZAL: You had air-conditioning in your car, right? I've heard stories from people saying they didn't have air-conditioning.

BETTY BURGHDUFF: No. That Rambler didn't have it. No. We traveled to California a couple times when he went there for work. Across the desert in that, no air-conditioning was tough.

RICHARD BURGHDUFF: It was tough. She would leave at 3:00 or 4:00 in the morning to try to beat the heat.

BETTY BURGHDUFF: Drive at night. Yes.

RICHARD BURGHDUFF: It wouldn't even work, it was too hot.

ROSS-NAZZAL: Doesn't cool off.

RICHARD BURGHDUFF: Wind was the only—

BETTY BURGHDUFF: Our next car had air-conditioning.

ROSS-NAZZAL: That was at the top of the list, right?

BETTY BURGHDUFF: Yes.

ROSS-NAZZAL: I wanted to ask you, because NASA is such a mission-focused Agency, what sort of impact you think Apollo had on the families itself, the mission to go to the Moon.

RICHARD BURGHDUFF: Did it train us to be mission-oriented? Maybe that's what we were before.

ROSS-NAZZAL: Maybe it didn't.

BETTY BURGHDUFF: Engineers and their families are very goal-oriented, I think. I think it was just taken for granted that it was going to happen. We can do it.

ROSS-NAZZAL: Did you ever feel like you had to make any sacrifice for the Apollo Program?

BETTY BURGHDUFF: No, I was proud to be part of it in a secondary way.

ROSS-NAZZAL: Do you think your kids had to make any sacrifices for the Program?

BETTY BURGHDUFF: No, I don't think so.

RICHARD BURGHDUFF: It left you with the kids when I was traveling.

BETTY BURGHDUFF: Yes, but that was okay. That's when I started to drive, when he started to travel.

ROSS-NAZZAL: You kind of need a car at some point.

BETTY BURGHDUFF: We'd take him to the airport and pick him up. It was a big deal. The kids got to see the airplanes.

ROSS-NAZZAL: Were you going up to what is [William P.] Hobby [Airport] now? Or were you going up to the new airport?

BETTY BURGHDUFF: We used to go just up here to Ellington [Field, Houston, Texas] and catch the shuttle.

RICHARD BURGHDUFF: Shuttle from Ellington up to the new airport, so that wasn't much of a trip from us. That was pretty convenient.

BETTY BURGHDUFF: Once in a while we went to the big [airport].

ROSS-NAZZAL: Did you ever go out to Ellington—I don't know if they did this for Apollo, but for Shuttle they used to have the sort of meet the crew when they came back. Did you go out to Ellington at all for any of those type of events?

BETTY BURGHDUFF: I think so.

RICHARD BURGHDUFF: We went up there once when they had the Shuttle on top of the airplane that was going cross-country. They let the employees go up and walk through it.

BETTY BURGHDUFF: That was later, yes.

RICHARD BURGHDUFF: That was later on.

BETTY BURGHDUFF: That's Shuttle.

ROSS-NAZZAL: I just had a couple more questions. One of the things that I think, but I want to get your opinion on, is that I think this was a community that was unique. It wasn't like any other, in the fact that you were all united behind one common goal. You don't really see that today. We're very fractured, very diverse, but you were all united behind this Apollo Program. I wonder if you agree with that, and if you would talk about that a little bit.

RICHARD BURGHDUFF: I think that's probably very true.

BETTY BURGHDUFF: Yes, I think so.

RICHARD BURGHDUFF: It wasn't something like working at Kmart, where you'd go to work and come back. It was something that was in your heart. I think it was like your child raising up or something.

BETTY BURGHDUFF: You were at the frontier of something no one else has done before, and it was of national importance I think. I can remember when Sputnik went overhead and people

were panicking. The Russians, are they going to make that a military thing. Tell them your Sputnik story.

RICHARD BURGHDUFF: Okay. I got drafted, and we ended up in—

BETTY BURGHDUFF: Fort Gordon.

RICHARD BURGHDUFF: Yes. I was on the way to Korea. Korea finished. They sent me to signal school, and then ended up at Fort Gordon, Georgia. I don't think it was a classified, but in the middle of the woods at Fort Gordon was a big transmitter/receiver station. They sent me to school, and my job was to maintain it.

First night someone talked about the Russians got Sputnik up there. I turned it on and played around till I found a beep that was going over and called the company commander, the captain, and said, "I'm listening to Sputnik, do you want to hear them?" He was there just like that. He was all just really, "The Russians are coming."

BETTY BURGHDUFF: They were worried. They were worried yes.

RICHARD BURGHDUFF: I don't know if I stayed overnight or not but he wanted to keep it going. The next day, I was in there, and suddenly this caravan of cars and trucks shows up, and there had to be more generals than I had ever seen in my life and high-ranking officers. There must have been 10 or 20 of them. They came wandering in there to listen to this horrible noise go over. It was sort of amazing. I never saw generals be panicky but they were panicky.

BETTY BURGHDUFF: Yes. They were worried about what the Russians [were doing]—it was the middle of the Cold War.

RICHARD BURGHDUFF: They were worried. Turned out to be just one step.

BETTY BURGHDUFF: I think that challenged this country to step up into the space program.

RICHARD BURGHDUFF: For a specialist first class, that was sort of a shocking event.

ROSS-NAZZAL: I bet. You did a lot of saluting that day.

RICHARD BURGHDUFF: It was sort of exciting.

ROSS-NAZZAL: Did both of you, at the time, have a sense of how unique the Clear Lake area was, having lived in Virginia and Wisconsin and other places before? Did it seem like a special place?

BETTY BURGHDUFF: It was, yes.

RICHARD BURGHDUFF: It was like a college campus almost because everyone—not everyone, but the majority of the people were all doing the same thing. Driving a quarter of a mile over here to NASA.

BETTY BURGHDUFF: Yes, because other places we'd lived, you didn't have that sense.

RICHARD BURGHDUFF: We were at Langley, Virginia, and they'd been there a long time.

BETTY BURGHDUFF: But we were kind of thought of as transient in Virginia. It was not that sense of purpose.

RICHARD BURGHDUFF: No, we were living in neighborhoods with very few people that had anything to do with Langley.

BETTY BURGHDUFF: Yes, you didn't assimilate; we were like Army brats. Here everyone was involved in the dream of the thing.

RICHARD BURGHDUFF: Had a common goal, everyone.

BETTY BURGHDUFF: Nobody was of the old school.

RICHARD BURGHDUFF: Yes, there was no history like Virginia has.

BETTY BURGHDUFF: Virginia had a lot of the feeling of the historical background. We lived close to Williamsburg. We were treated like Army transients.

ROSS-NAZZAL: Did you feel welcomed here when you got here?

BETTY BURGHDUFF: Oh yes, we were starting something new. The city of Houston was enthusiastic about it. They named the Astrodome and the Astros and the Rockets.

ROSS-NAZZAL: How has the area changed since you guys moved here?

BETTY BURGHDUFF: Traffic.

ROSS-NAZZAL: I can imagine.

RICHARD BURGHDUFF: They keep widening highways. Highway 3 was two lanes, one each direction. Traffic is worse. We didn't have a shopping center across the street. Matter of fact, we had to go into town to do a lot of stuff. We had one store to go shopping.

BETTY BURGHDUFF: The Piggly Wiggly.

RICHARD BURGHDUFF: Piggly Wiggly.

ROSS-NAZZAL: Always fun to say.

RICHARD BURGHDUFF: Of course it's so diverse now. I doubt that half the people in our building have ever worked for NASA.

BETTY BURGHDUFF: Yes.

ROSS-NAZZAL: I see that both of you have some notes. I don't know if you want to review some of those. Dick, I think I might want to do a separate interview with you about your NASA career. It sounds like you did some really interesting things and reporting to Congress about the glass cockpit. I think that'd be interesting to capture some of that history.

RICHARD BURGHDUFF: I got to be careful I don't say names.

BETTY BURGHDUFF: Could be in trouble.

ROSS-NAZZAL: I don't know if there's some other things that you wanted to address or talk about.

BETTY BURGHDUFF: No, we just had written down some dates so we wouldn't forget about it.

RICHARD BURGHDUFF: I'd written down went to Langley in 1962, February.

BETTY BURGHDUFF: When he graduated from Marquette University [Milwaukee, Wisconsin], he was recruited to come to NASA, and we thought, "Wow, that's really something!" We were very excited about that.

RICHARD BURGHDUFF: We had a strange way to get there.

BETTY BURGHDUFF: But that's okay.

RICHARD BURGHDUFF: I took off a semester before.

BETTY BURGHDUFF: We got married in September and he—

RICHARD BURGHDUFF: I took a semester off.

BETTY BURGHDUFF: I had graduated from college, he had not yet.

RICHARD BURGHDUFF: As soon as the government found out I wasn't—

BETTY BURGHDUFF: In school.

RICHARD BURGHDUFF: —in school I got drafted.

BETTY BURGHDUFF: So he spent two years in the Army in between.

RICHARD BURGHDUFF: They were going to send me to Korea. That stopped. We got married and I guess I got my little draft notice within a month.

BETTY BURGHDUFF: Yes.

RICHARD BURGHDUFF: They must have tracked me.

RICHARD BURGHDUFF: After a couple years in the service we had two kids.

BETTY BURGHDUFF: One.

RICHARD BURGHDUFF: We had one at the time. I couldn't afford to go to school, so I went to work. I worked days and went to school nights at Marquette. To finish that last semester I needed to finish took me—

BETTY BURGHDUFF: Three years.

RICHARD BURGHDUFF: —three years. Because I could only take a couple courses at a time at night. The Jesuits teach at Marquette, and I had to take certain courses to have their viewpoint. I spent a lot of time there. When the Langley guy came to interview me, it was one of those typical Wisconsin winters where it never got above zero, and he was dying in the cold. He offered a job at NASA, and I grabbed it.

ROSS-NAZZAL: I did see one other question that I don't think we asked about. You mentioned in your piece about the women's service committee. The men used to come home for lunch. Did you come home for lunch? Or did you eat there?

RICHARD BURGHDUFF: I think I carried a brown bag most of my career, huh? I don't remember coming home for lunch.

BETTY BURGHDUFF: No.

ROSS-NAZZAL: There was a statement about how the women decided in '67, because the guys would come to the lunch.

BETTY BURGHDUFF: Yes.

ROSS-NAZZAL: There were too many of them.

BETTY BURGHDUFF: That's true.

ROSS-NAZZAL: I was curious if Dick had been told, "No, you can't come." I thought that was an interesting little story, little anecdote.

BETTY BURGHDUFF: We used to have—remember we had luncheons? Then they said, "No more husbands. This is a women's group."

ROSS-NAZZAL: I guess we didn't talk about Apollo 8. I don't know if there's anything else that you would like to say about another mission, but that was a really important mission.

BETTY BURGHDUFF: I don't know. We followed all of them.

RICHARD BURGHDUFF: Usually once one mission is flying, engineering is following that very carefully. The other part of engineering is working on the next mission that's coming. Adding the glass cockpit took a couple years of activity, that was pretty intense, and a lot of travel. Going to Germany was sort of fun.

ROSS-NAZZAL: I'll let you guys look at your notes, but I think I asked all my questions.

RICHARD BURGHDUFF: I think this has the Marquette part in it. Seems like life moves you along rapidly.

ROSS-NAZZAL: The older I get, the quicker time seems to pass. I just remember being young, and it didn't pass that way.

RICHARD BURGHDUFF: One interesting about being at Langley, where we lived, Langley has huge wind tunnels that did airplane type stuff earlier. When those things went off, the whole neighborhood rumbled. The first time we heard that I guess we thought we were having an earthquake.

ROSS-NAZZAL: Probably woke everybody up.

BETTY BURGHDUFF: Yes.

RICHARD BURGHDUFF: I don't have anything else.

ROSS-NAZZAL: Thank you so much for your time today. I really appreciate it. This gives me some more information.

BETTY BURGHDUFF: I hope it was helpful.

ROSS-NAZZAL: Yes.

RICHARD BURGHDUFF: It triggered a lot of memories we had put off aside.

ROSS-NAZZAL: I bet.

BETTY BURGHDUFF: It's a good thing to stop and think about it for a while before we get any older.

RICHARD BURGHDUFF: When we can't remember anything.

BETTY BURGHDUFF: When you think about our kids are now 58 and 60, oh my goodness, how did that happen?

ROSS-NAZZAL: I understand. Thank you so much.

BETTY BURGHDUFF: Our granddaughters have a lot of respect for the space program. It's going into a third generation.

ROSS-NAZZAL: It's great that Houston became your home and you made it your own, your place.

RICHARD BURGHDUFF: No more Wisconsin winters.

BETTY BURGHDUFF: No. We don't have any family left.

ROSS-NAZZAL: You're officially Texans now.

BETTY BURGHDUFF: Yes.

ROSS-NAZZAL: Thank you so much.

BETTY BURGHDUFF: You're welcome.

[End of interview]