SCIENCE HISTORY INSTITUTE

# NANCY B. JACKSON

Transcript of an Interview
Conducted by

Hilary Domush

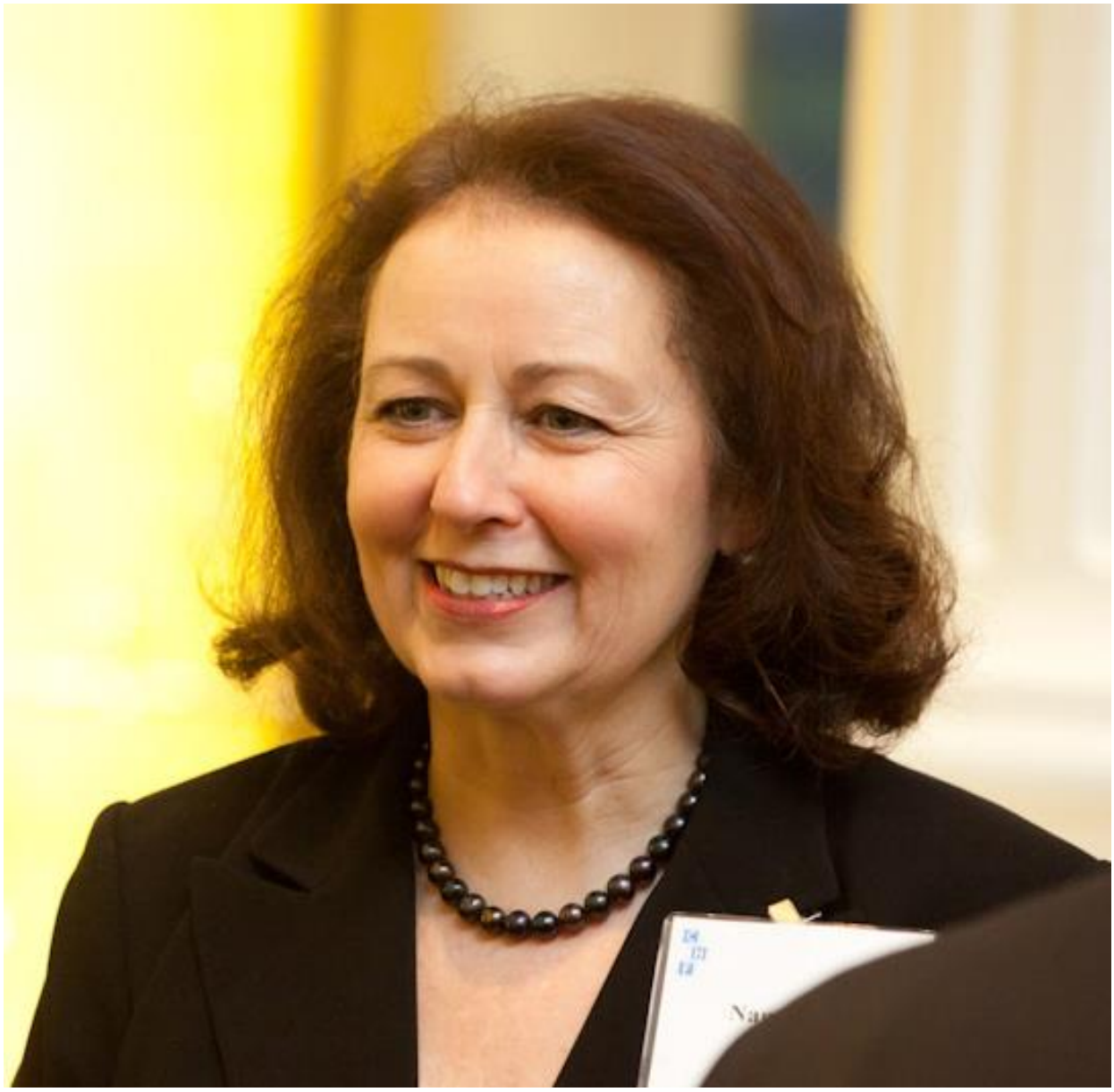
at

Chemical Heritage Foundation
Philadelphia, Pennsylvania

on

22 September 2010

(With Subsequent Corrections and Additions)



Nancy B. Jackson

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**NANCY B. JACKSON**

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| 1956 | Born in Eau Claire, Wisconsin on 1 March |
| 2022 | Died in Albuquerque, New Mexico on 3 January |

## Education

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| 1979 | BS, Chemistry, George Washington University |
| 1986 | MS, Chemical Engineering, University of Texas, Austin |
| 1990 | PhD, Chemical Engineering, University of Texas, Austin |

## Professional Experience

American Chemical Society

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|---|---|
| 1979-1982 | Staff Associate |

Sandia National Laboratories

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| 1991-2001 | Principal Investigator, Catalysis Research |
| 1991-1995 | Department of Energy, Education Activities |
| 1992, 1994-2009 | Laboratory-Managed Research and Development Program |
| 1995-2001 | Catalysis Program Management and Development |
| 1997-1998 | Sandia Government Relations Team |
| 2001-2004 | Manager, Chemical and Biological Sensing, Imaging, and Analysis Department |
| 2004-2006 | International Security Center, Deputy Director |
| 2007-2013 | Manager, International Chemical Threat Reduction Department |

University of New Mexico

| | |
|---|---|
| 1999-2003 | Associate Research Professor, Chemical and Nuclear Engineering Department |

US Department of State

| | |
|---|---|
| 2014-2015 | Franklin Fellow, Senior Science Policy Advisor, Science Diplomacy and Nonproliferation |

## Honors

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|---|---|
| 2003 | Women on the Move Award, Rio Grande YWCA |
| 2004 | Distinguished Alumni Achievement Award, George Washington University |

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| 2005 | Professional of the Year, American Indian Science and Engineering Society |
| 2005 | Fellow, American Association for the Advancement of Science |
| 2005 | National Affiliate, National Academies |
| 2009 | Howard Fawcett Award, ACS Division of Chemical Health and Safety |
| 2011 | Fellow, International Union of Pure and Applied Chemistry |
| 2011 | Distinguished Women in Chemistry and Chemical Engineering, IUPAC |
| 2011 | President of the American Chemistry Society |
| 2012 | AAAS Award for Science Diplomacy |
| 2013 | Fellow, American Chemical Society |

## PREAMBLE

After my wife, Nancy, passed away in January of 2022, I began the process of sorting through her papers and electronic files, hoping, I suppose, to preserve some of her words for the world, or at least for myself and our children. In doing so I came across a copy of this interview given in late 2010. I only vaguely remembered that it had happened but had never seen or read it. I looked for a version online, and although I could find documents from similar interviews with Nancy's friends, peers, and colleagues, I was unable to find hers. On following up with the staff at the Science History Institute, I discovered, as anticipated, that Nancy had never completed the review and signed the requisite paperwork. (Shortly after the interview was conducted Nancy began one of the most intense years of her life and career, spending at least 208 days on the road including a large number of weekend days, visiting at least 17 countries on 5 continents [some more than once], and circling the world 3 times. This was just one of the things that fell through the cracks.) As I wanted Nancy's story to be told, they kindly offered to complete the editing process with me and accept my signature on the release. As we went through the process, it was difficult for me at times to avoid straying off task and commenting on Nancy's life and passions. For example, I noted that I wished that there had been more discussion of Nancy relationships with her children and with her father. In response, I was graciously offered, and I accepted, the opportunity to compose a preamble for the interview. Being aware that my views are no doubt colored by our relationship, and by my sense of loss, I have attempted to include Nancy's own words, taken from notes, talks, letters, and musings. And I have tried to focus on things you might not take away from the interview, i.e., to add context and new information rather than extra emphasis. I hope you take away the sense that Nancy was a very complex, but deeply human individual.

In the interview you will learn that Nancy considered her father to be one the biggest influences on her life. Norman Jackson is of Seneca descent and an ordained Christian minister and is unafraid and unapologetic for being critical of the dominant culture and the sins of Christianity. Looking back, it is hard to overstate his influence on Nancy. He was, I believe, the role model closest to her heart, the person she most tried to emulate. The values and worldview that would guide her life and career began to form under his influence, which remained foundational as she grew and matured. Of course, Nancy and her father had a unique connection as they shared something in common that the rest of her immediate family did not—the fact that they were Native American. She invited her father, not her husband, to the AISES (American Indian Science and Engineering Society) award ceremony (see the interview), because this was a world that she shared only with him in the most authentic sense. Being of Native descent was very personal to her and it was hard for her to put into words, even with her beloved children. In fact, I can't remember when I learned about her Native roots, perhaps not until we were engaged or even after. In the interview Nancy explains "I just want to be it," and "there's no flaunting it, but there are decisions I will make and things I will do that will be a result of my Native cultural background. But you might not know that..."

The following words taken from notes prepared for talks provide some insight into some of the Native cultural values, first encountered from her father, she drew on. "We are moving in the direction towards a stark libertarian individualism. It is impossible for me to even understand that individualistic direction. Some of that comes from my Native American background, and some of that comes from my extensive travels that have made the world

smaller to me personally. Also, if one looks at the world the way Rachel Carson did – interconnected in every aspect – then individualism doesn't make sense. It is essential to consider the common good, the community and the earth's well-being, the importance [of the impact] of what we do [will have] on the seventh generation." Or "… the Indian culture is focused on building a life the Creator intended for us to live and thinking of community over the individual, and to be grateful and respectful for the earth and the life it gives us, …" and "… it is hard to look from outside in and not see the dominant culture as dysfunctional, amoral, shallow and self-destructive." Or finally, "Humans are as much a part of the earth as the fish of the sea and the birds of the heavens. Our fates are closely and intrinsically entwined." Of course, these are but a few of her thoughts, captured in writing but devoid of context, and are but a part of a complex picture.

Similar to her approach to heritage, Nancy was not overtly religious—it is not even clear she was a believer per se, but she was nonetheless a preacher's kid, twice over. Thus, Nancy was able to say that "I learned from my father that Jesus [was] a man who eschewed worldly power and brought humbleness, caring, and a rebelliousness against power that subjugated people. . . . Who turned down the devil's offer for worldly power and gain – Who believed that a rich man has as much ability to get into heaven as a camel through the eye of a needle. So I grew up believing in the little guy, in the underdog, the need for justice. I believed that someone as lucky as me owed the world … I had great responsibility to the world." Thus, it is not a coincidence that while Nancy quite literally met princes and princesses, government officials, men and women of great wealth, and some of the most successful, gifted, and recognized scientists in the world, that in this interview she cites as "heroes of chemistry" lesser-known individuals who are working to make a difference for their country and the world, often in very challenging circumstances. Also, though she was acutely aware of the perils of religion in the public space, she would still view the separation of religion from the rest of life as a Western concept with considerable drawbacks: "those who don't believe in mystery, who think that we humans can know-it-all, are susceptible to arrogance and hubris, the most destructive of human sins." For her "The God … that I know … is a God that keeps us humble... This is a God that reminds us of our humanity, loving us, encouraging us, and filling us with awe." And "One of my favorite aspects of being in Pakistan [for a month many years ago] was the call to prayer five times per day. How soothing and calming and centering it was to be reminded throughout the day of god's greatness and our blessings."

Justice, responsibility, humility and gratitude, working towards the common good, concern for the earth and its people, concern and responsibility to future generations – these are among the more prominent values and lessons Nancy drew from her father, and tried to live up to and apply.[1] I will add that there are other, more subtle things that came from growing up with two cultures, for example her flexibility, empathy and curiosity and joy in experiencing other cultures.

[1] In the years following this interview, prior to her illness, Nancy returned to Washington, DC and lived there for a year and a half working at the US Department of State. She found the Franklin Delano Roosevelt and MLK monuments inspiring, and I found in her files several photos and mentions of these particular quotes. From Roosevelt, "The test of our progress is not whether we add more to the abundance of those who have much, it is whether we provide enough for those who have too little." From King, "The ultimate measure of a man is not where he stands in moments of comfort and convenience, but where he stands in times of challenge and controversy."

Perhaps it goes without saying that Nancy wasn't one person at work and another in the personal life. To borrow from religious language, she had a calling to make a difference that permeated everything in her life. But as the interview is appropriately focused on her professional journey, I'd like to share just one example from outside of work. It just so happened that the church we were attending was given a very large bequest with the caveat that it was only to be used to serve homeless families. Nancy, of course, volunteered and served as a founding member of the Board of Directors of Saranam and eventually served as the Board Chair of the organization. Saranam is thriving and provides housing and education for homeless families in Albuquerque and offers a comprehensive range of services to assist families in transitioning beyond homelessness. Nancy served throughout the development of the vision, structure, and realization of the two-year program design and was chairman when they bought and took over management of an apartment complex and graduated the first families. It is in this context that I will tell you that there was at least one more lesson from her father that made Nancy who she was: the necessity to speak truth to the powerful and the comfortable, and to hold those with power accountable.

I will always remember Nancy standing before the large congregation after being invited to say a few words primarily due to her role in Saranam and, without comment, reading the words of William Sloane Coffin.[2] She unflinchingly reminded us of the difference between charity and justice, that charity is not a substitute for justice, that we favor the wealthy and powerful, and that we are called to confront injustice, even though it will likely be costly and painful. She did this knowing it would not go over well, and indeed it did not, though the details scarcely matter now. Years later, I would find echoes of the final words of the passages she read that morning, stripped of their Christian specificity, in addresses she gave to student audiences, particularly Native and other minority students: "I am hoping that the new generation, … will start to change the future – to realize that our culture, if allowed to drift farther and farther away from the understanding of the need for the common good, will bring enormous human misery and suffering. What we need to meet this perfect storm, are highly educated, intelligent, driven and caring leaders. We need these leaders to be vigilant, mindful. To know what their values are, to have the courage to live those values, to challenge the mainstream, and to act on their values every day, in every way possible, both large and small. [Because] it won't be inventing a new transportation fuel or a new pharmaceutical that will save us. It will be our values and how they are translated through political and economic institutions that will determine our future."

Nancy's passion for impacting the world around her was magnetic, drawing many to be her friend, her colleague. In her oral history interview with Hilary Domush, Nancy very briefly touches on the early days of our relationship. We had worked in the same group for many years and become friends, at least at work, before we became a couple. With the difference in our ages, backgrounds, and life experience it just wasn't obvious we should, or even could, be a couple. Nancy tells the story of how, before leaving for Pakistan, she told me when she came back we were either getting married or breaking up. What she left out was that it was literally in the last few hours before she left – virtually on the way to the airport. At any rate, though I wasn't imminently planning on asking her to marry, and we hadn't been together all that long,

[2] "So what the Christian community needs to do above all else is to raise up men and women of thought and conscience, adventuresome, imaginative people capable of both joy and suffering. And most of all they must be people of courage so … they will be able to say … to go against conscience is neither right nor safe. Here I stand. I can do no other." William Sloane Coffin

how could I not? It was perhaps a risky thing to do, but somehow I think we just trusted each other. I think we saw values in each other and we complemented each other in a way that gave us confidence to take the leap. And, when someone fantastic gives you the chance to embark on the greatest adventure of your life, you'd best get onboard.

My point is that, as a couple, it was rare that we ever had one of those serious discussions about "how do you envision the future." As a result, I suppose to my discredit, we never discussed, and I never really thought much about adding to our family. In retrospect there are things I knew that I suppose should have been clues as to how important having a family was to Nancy, and what a devoted mom she would be. But I never put it together, so in the tradition of our engagement, as I recall Nancy just announced one day "Jim, I'm almost 37 years old, we need to have kids now" and then some months later, "This is the house I want to raise our kids in." And of course, she was over the years proven to be right, and I am ever so glad I trusted her.

After the kids were born, I came to realize there was even more to Nancy than I had ever imagined. I'm embarrassed to say how surprised I was at the depth of her love and care for our twin boys. I had seen her as a student, and someone early in a new career who also seemed to be doing so much more than many of us—so engaged with world and the opportunities before her. And yet as a friend recently reminded me, Nancy, in a way, had a very conventional upbringing. Her mother was clearly not without influence in her life. And so Nancy embraced motherhood, even many of the traditional aspects, in a manner I just hadn't anticipated. She decided to work part-time for two years, setting aside some of her ambition because she just had to spend more time with the boys. Who was this woman hosting birthday parties, arranging play dates, splashing in the pool with her kids, sewing Halloween costumes, and decorating cakes?

But Nancy was still one to do things her own way. So, when work or other things called, she decided to deal with the fact that she didn't want to be away from the boys by including them in everything. She was determined to show them the world, and her world, and social norms were not going to get in the way. When the boys were still infants she would take them with her to technical conferences, inviting a friend or nanny along to care for them during the daytime so she could spend a day sitting on the beach with them afterwards. She was more than willing to board a long flight to say, Hawaii, with two infants and an old friend or nanny in tow. I would say to Nancy, "You can't bring the boys to this banquet (or business dinner, or meeting …)," and yet after she passed, someone gave me a photo a colleague happened on in an old desk drawer. I believe it was taken at a catalysis society meeting, and Nancy is there in her fine clothes at a banquet table smiling radiantly and flanked on either side by what must be our 3- or 4-year-old boys sitting and smiling with their desserts and each sporting a suit vest. It's just the way things were.

As we got older, with school and other commitments, it became impossible for the boys to accompany her everywhere. Nonetheless, she continued to include them and show them the world in as many ways she could. When the boys were 7, she took them, by herself, to London just after Christmas. She was exhausted and to make a long story short she ended up in the hospital with pneumonia. Though it was a frightening experience for us all, the boys seem to have learned they could rely on each other and themselves in a way that they might never have otherwise. When Nancy was awarded the Distinguished Alumni Achievement Award by George Washington University, she was accompanied to the event by one of her 11-year-old sons who she wanted to experience Washington as she had as a child. In other instances, she took or

accompanied one, the other, or both of our kids to Egypt (one son now studies Classical Archaeology in graduate school), Istanbul and other parts of Turkey, England, France, Italy, Prague, Greece, the Caribbean, and to places all over the United States. On many of these trips they were allowed to explore alone a bit, for example taking trains across England to a soccer match, or a tour to Alexandria, Egypt, or sometimes just wandering the city a bit. After she passed, one of the boys told a story of how he went to so many ACS (American Chemical Society) events that he knew and recognized a lot of people who had talked to him and engaged with him but only their first names. Only later, in college and grad school, would he discover that they were Nobel Prize winners, or Fellows of the ACS or the Royal Society, or president of a foreign society or some other accomplished or dedicated person from across the country and across the globe. Make no mistake, this was all her doing, her vision, to show them the world.

When the boys and I couldn't tag along, we communicated as best as we could, depending on the location and options available. One of Nancy's friends recently told me about seeing her step out of an event to have a long discussion with the kids about Scooby Doo. I think she was as surprised as I had once been to see this other side of Nancy, which so few knew about. But talking to her children was so very important to her. When Nancy was home, we never had a standard dinner time. We ate whenever we could all be together—6 pm? 9 pm? 9:30?—Nancy, I think, remembered back to those times she spent with her father talking and learning and I think she so much wanted to recreate that for her kids, and perhaps herself. In discussion, Nancy tended towards being more open and trusting of them than not. In private, she spoke to them about people and events from when she was growing up to the days before we became a couple, things I scarcely knew, but that she thought would make a difference for them, and perhaps for her. But being on the road complicated things quite a bit and was difficult for all involved, especially if she was in a time zone on the opposite side of the world. The boys missed her greatly, as did I, and in return she missed us. One of the boys kept track of her travels around the world by pushing pins in a map of the globe on his wall. He felt Nancy's absence very acutely as they were very close; her presence helped keep him an even keel. So, often unbeknownst to me, Nancy would wake up in the middle of the night to skype or sometimes phone him when he awoke early in the morning to prepare for his very early morning extracurricular activities, or late in the evening when he went to bed. Though she hid it so well, and found ways to cope, Nancy was so often exhausted by her travels that this really stands out to me as true act of love and caring, so often done in a way that even I couldn't acknowledge it. All told, Nancy gave our children an amazing and beautiful upbringing—one that to this day I can't imagine for myself or imagine being able to provide to them. They were extraordinarily privileged to have her as a mother, and I think they realize that. But to add some perspective, in spite of the obvious benefits for the kids of these experiences, travel and meeting so many lovely and amazing people from all over the world, I don't think Nancy was so much trying to teach or groom her kids, but rather she was trying to give them the kind experiences she had so wanted as a young person. She was living her dreams and she wanted to share the joy and wonder of it all. And for her, family and relationships were a necessity of life—"I believe that humans need to feel a community in order to feel whole. Humans are remarkably incomplete on their own. They need a village. That can be an extended family, a group of great friends, a church, or a special neighborhood. I need my husband, my children, the rest of my family, and my friends to even begin to feel whole."

There are so many other things I could tell you about Nancy's life. There was so much more to her than met the eye. Like how as a young woman she found that ambition and expectations could be as much of a burden as a blessing. Or, how much she struggled with illness of one sort or another her whole life but refused to let it stop her. And that as a young woman she wrote that her health struggles perhaps gave her a wisdom that her peers didn't possess and that she didn't really want. I suspect it was probably that wisdom, in part, that drove her forward to beat the clock. I think that when she would say to me, "don't worry, I'm going to live to be very old," in part she was trying to reassure herself. Or just how memorable she was to so many people she met along the way, and they to her, for so many different reasons. And how these relationships were so important to her and impacted her approach to life and to work. (Her understanding of leadership was that it was her role to give others the help and tools they need to be successful.) Or how she could somehow be so fiercely independent and strong and powerful and yet still, in more private moments, need to draw strength and comfort and rejuvenation from her family and her extended network of support. She needed independence and freedom but also craved stability. What so often seemed to be fearlessness, was in reality closer to courage. Nancy was not without fear, or even without doubt. But she was brave. Or finally what she learned through her work on chemical weapons, but couldn't share, took an emotional toll on her. She loved the job, but it was costly to her in many ways. And yet, she found hope in the young people of the world, and in her chemistry heroes, in their enthusiasm and desire to make their countries and the world a better place.

Being Nancy's husband was not always easy. But I never regretted taking on that role, or wanted it undone. When we were engaged Nancy told me, "It will be an adventure." She said the same thing when we had kids, or when she was trying to drag me to something or somewhere I was reluctant to experience. And, as always, she was right. So to anyone who is thinking of marrying an extraordinary, ambitious woman, I say do it. Bear in mind, it won't always be easy. At times it will be exasperating, and other times lonely. And you may have to share your admiration of her with others who hold a place for her in their heart. But don't be threatened, give her space to do what she needs to do. Join her when you can. Remember her successes are in some sense your successes too. Be proud and love her. It will be an adventure, at times it will be a thrill, and it will be worth it.

I will close with a very slightly edited note Nancy wrote to her beloved children. To add context, by the time the most intense stage of Nancy's travel had ended, the boys had moved off to college, too far away for any casual or weekend visits. She missed them dearly, and I think mourned the time she had missed with them, even though she was very proud of who they had become. Eventually she hung a photo of the two them she had taken immediately next to our front door. She explained to me she did it so the last thing she would see when leaving was her children. This note captures I think that mixture of pride and regret, and especially love. I found it in her files after she passed. It must have been written while she was living in DC, and perhaps on the road, but as far as I can tell it was never sent. It isn't quite as eloquent as she often was, so it may well be showing early signs of the disease that would rob her of her words and eventually take her life. But it is honest, and it is her.

"You two are amazing to me … concerned about the world, interested in learning, moral to a great degree. I am so proud of you and in awe of who you have become. … How did you become so amazing? I am concerned about the future of the world, but with you around, it eases my mind. I think you will do a lot. Even if you are not president of the US, or great

professors who get Nobels, you will have made more of an impact on the future of the world. Presidents and Nobel Prize winners seem to have adoration, but it is those that help others and make a difference through their research or their causes [that] are the great people of the world. Don't forget that. [Also,] Speaking truth to power is [not] a way to get power. But it can have a huge effect on the world.

How did I get so lucky to have such amazing kids? I don't know. You have a great Dad and a mom that was travelling during your high school – although I brought you with me sometimes. A lot of your greatness is just you.

God Bless you."

James (Jim) E. Miller
Husband of Nancy B. Jackson
October 24, 2022

## ABSTRACT

**Nancy B. Jackson** was born in Wisconsin, and her family moved a few times during her childhood. Jackson spent much of her teenage years in St. Louis, Missouri. Both of her parents were United Church of Christ ministers. Her grandfather was Native American (Seneca) and grew up on the Cattaraugus reservation in New York. Jackson was originally interested in politics and worked on Capitol Hill before and while attending George Washington University, but Theodore P. Perros convinced her that a chemistry degree would be more impactful in environmental and Native American causes. After graduation she worked in education at the American Chemical Society (ACS) for several years. Next, she returned to graduate school, earning a MS and PhD in chemical engineering, which she regards as being a sort of applied chemistry, at the University of Texas in Austin, working with John G. Ekerdt. There she met and eventually married James Miller, also a chemical engineer, and the couple accepted jobs at Sandia National Laboratories in Albuquerque, New Mexico.

Jackson did her PhD and began her career in the field of catalysis and was soon joined by her husband in that area. When Nancy and her husband had twin sons, Jackson worked part-time for a few years shifting her focus to collaboration, building the program, and supporting it through fundraising activities. Concurrently, she undertook educational outreach activities to underrepresented minorities and assumed tribal government relations responsibilities. She eventually moved on from catalysis to manage a group that specialized in chemometrics. From there Jackson became deputy director of the nonproliferation group under Dori [Doris E.] Ellis. After a management reshuffle, Jackson found her footing by working with the US Department of State to found the Chemical Security Engagement Program (CSP) and within Sandia to found and manage the International Chemical Threat Reduction Department. Jackson also began actively attempting to improve the working environment for women at Sandia and to make it more equitable; she became head of Sandia Women's Action Network (SWAN). The CSP program undertook the task of educating and assisting chemists in industry and academia with safety and security, first in developing countries in Southeast Asia; then the Middle East; now in Africa. This work entailed understanding of the difference in countries, labs, products, goals, and problems; sometimes this meant risk-based safety assessments and follow-ups. During this time, Jackson gave talks in different countries about border security and other topics of interest.

Throughout graduate school and her professional career Nancy was very active in the ACS serving on and chairing many committees and participating in society governance. In 2008 she was asked to run for President-elect of the Society. In 2009, while in Jordan, she was notified that she had won the election and would begin serving as President-elect in 2010. She was especially excited because her Presidential year would be the International Year of Chemistry, 2011. During her Presidency, she hopes to expand the influence and reach of ACS internationally and make the resources more universally available. Relying on stories and relationships—a characteristic of her Native American heritage—Jackson wants to improve communications with the public. She feels that the US is losing its leadership in science and thinks that more education and research in science are needed. She is delighted to be the first Native American President of ACS, and she looks forward to promoting more Native Americans through the American Indian Science and Engineering Society (AISES).

## INTERVIEWER

**Hilary Domush** was a Program Associate in the Center for Oral History at CHF from 2007–2015. Previously, she earned a BS in chemistry from Bates College in Lewiston, Maine in 2003. She then completed an MS in chemistry and an MA in history of science both from the University of Wisconsin-Madison. Her graduate work in the history of science focused on early nineteenth-century chemistry in the city of Edinburgh, while her work in the chemistry was in a total synthesis laboratory. At CHF, she worked on projects such as the Pew Biomedical Scholars, Women in Chemistry, Atmospheric Science, and Catalysis.

## ABOUT THIS TRANSCRIPT

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**INTERVIEWEE:** **Nancy B. Jackson**

**INTERVIEWER:** **Hilary Domush**

**LOCATION:** **Chemical Heritage Foundation**
**Philadelphia, Pennsylvania**

**DATE:** **22 September 2010**

**DOMUSH:** Okay. Today is September 22, [2010], and I'm here at CHF [Chemical Heritage Foundation] with Dr. Nancy [B.] Jackson, who was kind enough to visit us here today for her oral history. And as I said, I usually try and just start out with some biographical-type questions. And I know that you were born in Eau Claire, Wisconsin.

**JACKSON:** Right. Only because Osseo, Wisconsin, where my parents lived at the time, wasn't big enough then to have a hospital, so they had to drive in the middle of a Wisconsin winter to a hospital thirty, forty, miles away.

**DOMUSH:** Oh, that can be quite difficult in a Wisconsin winter. I spent four Wisconsin winters . . .

**JACKSON:** Ah, [University of Wisconsin] Madison?

**DOMUSH:** Yeah. I'm familiar with how difficult thirty or forty miles can be. So then was that the town that you grew up in?

**JACKSON:** No. In fact, when I was about six months old or so, my parents [Norman and Faith Jackson] moved to Madison, [Wisconsin], and I lived there until I was five. And then I went . . . my dad decided to go get a doctorate, and we moved to Bloomington, [Indiana], when he went to Indiana University, and I lived there for three years. He worked very hard. Then we lived in Wichita, Kansas for about three years. And then I spent basically fifth through twelfth grade in St. Louis, [Missouri], suburban St. Louis. So I moved around a lot.

**DOMUSH:** Now, were all these moves related to—

**JACKSON:** My father's job.

**DOMUSH:** Your father's doctorate and his job and things.

**JACKSON:** Right. Both my parents at this time are ordained ministers in the United Church of Christ. And the United Church of Christ is a . . . well, you probably heard about [Barack] Obama's minister, [Jeremiah Wright]?

**DOMUSH:** [Yes.]

**JACKSON:** Well, as my dad says, "I knew Jeremiah [Wright] when everybody called him Jerry." That was a United Church of Christ church. Andrew Young is another . . . . I mean, my father went to seminary with Andrew Young. Famous UCC people are Patricia [S.] Schroeder, Congressman Patricia Schroeder, Hubert [H.] Humphrey. So anyway, that gives you some idea of the flavor of the religion. And my father . . . my mother didn't get ordained until my thirtieth birthday, but my father was ordained before I was born.

**DOMUSH:** So then were these communities that you kept moving to, was there any family there or any community like family, maybe part of the church or things like that?

**JACKSON:** Well, you know, I'm sure this is not coincidence, but my relationship with the American Chemical Society is in many ways very similar to the way my father's profession was with his denomination. So he moved from church to church, or, well, actually, after I was five, he never had a church. He taught seminary, or he was an executive in a church, or he did something like that. But he was always connected with the UCC church, and he had that environment and that community on a national basis of which he was always in touch with any of these people. And they are now living—my parents are now living—in a retirement community that is part of the United Church of Christ. They're there with a lot of ministers and missionaries from that denomination, and so they've lived within this sort of national community all their lives, just kind of like I lived in the American Chemical Society community. I said it's probably not a coincidence that I have done that as well. I'm sure there was something scripted into my nature or nurture.

**DOMUSH:** Now, I read—I can't remember, I think it was maybe in one of the short AWIS [Association for Women in Science] biographies that are available online—that your father is a member of the Seneca Tribe [Seneca Indian Nation].[3]

[3] Jackson nor her father could be an enrolled member of Seneca Nation since that passes through the mother. They are of Seneca descent, but not eligible for membership based on tribal rules.

**JACKSON:** Right. Well, actually . . . yeah. My grandfather was born and raised on the Cattaraugus Reservation in New York, outside of Buffalo, [New York]. And my father is Seneca as well. But since my grandfather left when he was an adult, you know, my father never lived there. I've been there. My father and I have been there, and this sort of thing, but he definitely grew up an urban Indian. And he still is very involved—has been most of his career—involved with the Native American community, particularly with the United Church of Christ. And his last full-time professional position was in Hawaii. He was a bishop **<T: 05 min>** of Hawaii.

**DOMUSH:** Oh wow.

**JACKSON:** The biggest Protestant denomination in Hawaii is the UCC, because it was the Congregational missionaries that the book *Hawaii*, movie *Hawaii*, was about.[4] And Hawaii is a very diverse, an incredibly diverse place. So my father got that position because he is "none of the above," no part of Hawaii. I mean, that's not the only reason, but that's why he was so successful at it. He teaches Christianity to Native Americans and to native Hawaiians. He has a very different take on Christianity than probably most Westerners do. He has a more indigenous take on it, because he is very . . . so he has been involved in that community for many, many years and then tried to teach me what he could, considering that I didn't have that community around me. I was very much in, you know, an urban upbringing, and so he tried very hard to give to me what he could of that. He gave me a lot in that regard, but I can't say I grew up in that. It wasn't until I moved to Albuquerque, [New Mexico], that I became very involved in Native American, sort of, communities myself.

**DOMUSH:** I'm particularly curious about the Native American aspect, for one reason, because I don't know much about it. But for another reason, because well, I guess this goes along with not knowing much about it, but when you do see things on the news, it's always centered about people that live still on reservations.

**JACKSON:** Right.

**DOMUSH:** And there's this kind of disconnect between the idea of that there are Native Americans and Native American people really everywhere in society, and you don't hear about that ever.

[4] James Michener, *Hawaii* (New York: Random House, 1959); *Hawaii*, directed by George Roy Hill, 1966.

**JACKSON:** Especially not out here [in Philadelphia, Pennsylvania].

**DOMUSH:** No, no. You don't. And I guess, again, that just furthers the "I don't know anything about it" phrase that I keep repeating. But it makes me very interested.

**JACKSON:** Right. Well, I mean, I will . . . so basically everything I know about . . . . I learned everything that is a part of me that is Native American came from my father and my grandfather, and because that was the way it came down. It's important to understand that most Native American cultures—at least historically—are not Western cultures. And that's probably the biggest difference. They tend to be more shame-based rather than guilt-based. They tend to be more community oriented. There's just a whole different sort of orientation about . . . even though you have to understand the tribes within the US are as different as the European tribes, so to speak. I mean, if you told a German that he was the same as a Frenchman, you know, you'd be in big trouble, right? And that's the same if you told a Sioux Indian that he was like a Hopi, you know. I mean, it'd just be insulting or whatever. [. . .] There are these different cultures. So there's not a monolithic Native American culture in North America at all, but there are certain aspects that do tend to be similar. So one of them is that they're not Western. They don't have that sort of sense that it's possible to be objective, you know, or that's . . . it's just a different sort of view on life, and that sort of thing.

And the Seneca were one of the Iroquois tribes. So they're up in New York, around New York and into Canada; the Mohawks in particular were up in Canada. But the Senecas were outside of Buffalo, and actually, it's interesting that the women who first started—I guess they don't call it really the feminist movement, but whatever—the Elizabeth whatever . . . can't remember her name. Canton, whatever . . .

**DOMUSH:** Cady Stanton.

**JACKSON:** Yeah. And some of those women, they were from that area. In fact, their first thing was at Seneca Falls, New York, right? Well, several of them were actually very close to some **<T: 10 min>** of the Seneca and Iroquois women that lived in their neighborhood, so to speak—or in their region—and there is historical evidence nowadays that they derived a lot of their ideas about feminism based on the relationship and the gender roles within the Iroquois.

**DOMUSH:** Okay. How interesting.

**JACKSON:** Yeah. This is something I've only found out just recently, myself. I mean, I grew up knowing that there was a different sort of role in that okay, so men have their roles, so women have their roles. But they weren't . . . but one wasn't subjugated to the other. Each had

their role, and both were valued and this sort of thing. Anyway, so that's part of . . . that's something I just found out lately and I've looked into it. I find that very interesting that that would inspire them.

**DOMUSH:** It is very interesting.

**JACKSON:** I mean, the Iroquois were quite—in Western terms—were quite civilized. I mean, they had this . . . you know, for years they fought. These people, I mean . . . they were not nice wars. They were very violent and very disruptive. And they built this confederacy, and it was very successful. It allowed them to be very successful and this sort of thing, and well-to-do in their terms . . . you know, comfortable and lived a good life. And so it was a very strong sort of culture. Those Mohawks, they still were out there fighting at Huron and all that, you know, and that's an Indian thing. So the Mohawks are known as aggressive, very aggressive sort of tribe. So if I went to the American Indian Science and Engineering Society, AISES [American Indian Science and Engineering Society], and talked about, made maybe some comment about a Mohawk, a lot of people would know what I meant. They'd know what I'm saying. It'd be like, "Those French, you know, they won't do this or that. They all want to retire at sixty instead of sixty-two, you know, whatever it is." [laughter]

**DOMUSH:** Now, when you were growing up and you were moving around and all these things, I'm going to assume that because your parents had these advanced educations, your father was a minister and had a doctorate and things, that there was emphasis on your education.

**JACKSON:** Oh, absolutely. So both my grandmothers had master's degrees.

**DOMUSH:** Wow.

**JACKSON:** And my grandfathers didn't, but my grandmothers did. My mother has a master's degree, and I have a doctorate. I came from a tradition of very well-educated women, and some of it was because both my grandmothers were . . . . I mean, they were fairly old. They were older when they had their children. And after World War II, there were a lot of women who were educated, and because of the lack of men . . . and both my grandmothers, kind of, fell into that category, so they were very well educated for their time, although it wasn't as usual in the 1920s as it might have been in the 1930s or 1950s.

**DOMUSH:** Was there any emphasis on or any interest in science?

**JACKSON:** Not really.

**DOMUSH:** Okay. [laughter]

**JACKSON:** I had a very close relationship with my father, who means the world to me, and was very much my mentor, still is in many ways. And we would sit around—when I was in high school—we would sit around the dinner table for hours afterwards. And we never talked about science. We talked about politics. We'd talk about philosophy. We'd talk about religion. We'd talk about culture. We'd talk about, you know, Native American culture and Western culture and everything like that. But we never talked about science, not once. [laughter]

**DOMUSH:** Everything else under the sun but the science.

**JACKSON:** Right, right. Well, we might talk about environmental things or the way they relate to the earth or this sort of thing, but it was never science.

**DOMUSH:** So then how did the interest in science develop? Because I'm pretty sure that I read somewhere that when you started out at George Washington [University], you were not planning on being a scientist.

**JACKSON:** Well, you know, why would a Midwestern girl go to George Washington University, unless she was interested in politics, right? And in fact, I was in this . . . you know, I went to high school in the 1970s, early 1970s. They were doing all these experimental things within the high school, and I was not a very good student. I mean, I just **<T: 15 min>** was not. I was very social. I liked people. I was really, you know…I just was not a good student. Webster Groves High School offered this program which they called—very 1970s-type program—called Community Campus. So you were allowed to take some of your classes at school, and then you would do these things out in the community and get credit for it. You had to make an agreement with the teacher as to how you would document it or write it up or what books you would read along with it. And I was . . . I mean, that program was made for me. There is no doubt in my mind. [. . .] It was really made for me because I didn't have that, sort of, book-learning interest, or I hated . . . . I didn't like to read. I was a very slow reader. And so I got to do all these things. To a certain extent, I was probably the poster child of that program just because it just suited me so well, and I got to do all these different things. I was very unafraid to go out in the world and ask if I could do this or ask if I could that and those sorts of things. I did everything from working in the surgery ward of a hospital and observed surgery to I spent one six-week period in Washington, DC, working in my senator's office.

**DOMUSH:** Oh wow.

**JACKSON:** And, yeah, as an intern, just as a little, you know, flunky. But I went when I was sixteen years old, turned seventeen while I was there. And I have an aunt and uncle who lived in Washington and their kids, and so I lived with them. And it was a very scripting experience, if they still use that word nowadays. It was just a fabulous experience. My first day . . . so I arrived the day before [Richard M.] Nixon's second [presidential] inauguration. My aunt wouldn't allow us to go to the inauguration, because she said there was a threat of violence. If you remember, the Vietnam War was still on. So we were allowed to go to the parade, and I did see some violence there with the police and the protesters.

And my first day on Capitol Hill was the day that the abortion decision [Roe v. Wade] was handed down.[5] Now, it wasn't like I was . . . . I mean, you know, kids were more naïve back then. If I hadn't read an article in a magazine about abortion and asked my mother, "What are they talking about?" I would not have known, literally would not have known what abortion was, which I did right before I went to Washington, and it was just a coincidence. And so people were out handing out roses, which I understand to this day they still do on the anniversary of the abortion decision. The antiabortion protesters hand out roses, you know, as a sign of pro-life or whatever it is. And I hardly knew what was going on; I mean, it was just . . . what an experience. You just can't imagine. It was pretty great.

**DOMUSH:** It's a lot to see in six weeks. It's a lot to take in.

**JACKSON:** I know but let me tell you. People would say, "Well, who did you work for?" I said, "Well, you know, it's a long time ago, you wouldn't know who it was." [They would say,] "How long ago was it?" [I said,] "Well, it was so long ago, it was back when Ted [Edward M.] Kennedy was good-looking." [laughter] So I had this wonderful experience one time where . . . . I mean, I would see Kennedy off at a distance, and I would often wonder since what's this Kennedy mystique? In those days, you know, it was . . . so okay, this is 1973, and this was a long time ago. This was only five years after his brother, Robert [F. Kennedy], had been killed and this sort of thing. So he was very young, and, you know, I'm like, what is this Kennedy mystique? Because he always looked, sort of, in a hurry and harassed and this sort of thing. And so one day I had a whole pile of papers in my hands, and I was in a hurry to go somewhere. This is in the Senate Office Building, and when you're in a hurry, and you're in an elevator—I was right in the elevator—you stand right at the front, and you burst out. I was standing there in the front, and I was very serious, and the doors opened, and I was just about to go out. And the doors opened, and there was Ted Kennedy in all his glory—six-foot-whatever glory. And he just . . . you know, because I was just about to run him over. He of course flashed me this big Kennedy smile, and I remembered just standing there going, "Oh, now I get it." [laughter] He was very handsome, and he had this beautiful smile, and he made me feel immediately much

[5] Jane Roe, et al. v. Henry Wade, District Attorney of Dallas County, 410 U.S. 113 (1973).

more comfortable. I mean, I just . . . **<T: 20 min>** in my memory, I remember just standing there for what seemed for a very long moment looking at him. And he was with constituents, some older gentleman. He was being very solicitous and nice to this man and talking to him. And I was just, like, "Okay, I get it now." I must have eventually moved off the elevator in some kind of fog of Kennedy charm and handsomeness, so . . . [laughter]

**DOMUSH:** So after this six weeks in Washington D.C., were you kind of hooked on politics in Washington?

**JACKSON:** You bet. I caught Potomac fever at the young age of sixteen. There is no doubt about it. I had Potomac fever in the worst way. And so there was no way I wasn't going to . . . . I mean, I didn't care what school I went to. I was going to Washington, DC, for college. My senator's office had told me when I come back to college, please come and work for us. My mother insisted that I not work my first semester, but the moment that first semester was over, I was back there on the Hill working there. And I just . . . anyway, it was great.

**DOMUSH:** So . . .

**JACKSON:** What happened?

**DOMUSH:** What happened? How did the switch take place?

**JACKSON:** Well, when I was in high school, I took chemistry. And this was in my sophomore year before I got into Community Campus, and before . . . and like I said, I wasn't a very good student, I mean, to say the least. The chemistry teacher was in the process of getting a divorce, and he was . . . didn't always show up, and when he did, he wasn't all there. And I really had a bad experience teacher-wise. But there was something that I found really interesting about it, nonetheless. I found it very interesting, and I felt, sort, of frustrated that I never got to really learn any chemistry, you know. I mean, I remember I, kind of, got the mole thing and how to balance equations, but it was like that was the only thing I learned in that whole chemistry class. And I thought . . . but it was really interesting. There was something about it that really piqued my interest, and I do remember my high school teacher doing that . . . he blew hydrogen and oxygen—or hydrogen—into soap bubbles and then he lit it. And, you know, so I remember some of these things that were very cool. So I decided that when I went to college I would take chemistry as a science thing. So I signed up freshman year for chemistry . . .

**DOMUSH:** Now, did you have to take a science? And did you have to . . . ?

**JACKSON:** I don't know. Probably. I just figured that I probably would, and so I signed up for it. Yeah. I think I had to take . . . . I mean, everybody had to take one year of something science-related. But, you know, they had many easier courses to get out of it than chemistry. But I was curious, and I wanted to take it. So I signed up for the class. You have to understand that not only had I then at this point worked on Capitol Hill, but I had also worked on a lieutenant governor's campaign, including I had traveled in part of the state with him within Missouri with another friend of mine on his campaign. And so I had . . . and I had worked for the City of St. Louis government by this point in time because I graduated early. I graduated in January of my senior year, and I worked full-time for a PR firm that worked a lot with the city and this sort of thing. So I really had a lot of political experience when I went to college for an eighteen-year-old that didn't have parents in politics or connections through my parents or anything.

The first semester of political science, the professor in retrospect I can understand was a very empirical political scientist. You know, the social scientists then as sometimes now are very pushed towards being more quantitative. And so he talked about quantitative studies, about the way people vote, and this sort of thing. I'm like thinking this guy has no idea what he's talking about, and this has nothing to do with the real world. So I got a B in political science, and I got an A in chemistry. And that's when I, kind of, realized that, you know, something odd was going on here. By the end of my second semester, and I did . . . and the second semester was even easier, because as I just mentioned, I didn't have a very strong background when I entered chemistry. The second semester was even a lot easier for me, because I was, sort of, grounded then, and I was just learning and not catching up. I was doing really well. And the chemistry professor, my freshman chemistry professor, **<T: 25 min>** Dr. Theodore [P.] Perros, who I love dearly, somehow connected with me or figured out who I was, and that I was . . . wondered who this person was he had never heard of who was getting As because GWU at that time was a very pre-med school. So anybody was getting an A was probably trying to suck up because they wanted to go to medical school, right? He didn't know who this person was in his classes. His classes weren't that big. He figured out who I was, and he really, kind of, took me under his wing, and he talked to me about chemistry, and he tried to talk to me about what I could do because of course I had no idea what I could do. I loved politics, and so he knew that, and he knew a lot of kids at GWU that loved politics. So he told me all the things I could do with the environment and with this and that and with my Native background. I thought, "Well, that might be really interesting."

And at that time, the Native community was very much educating their people as lawyers. I mean, that was the first place that the Native community, sort of, educated their people was in the law, so that they could use US law to get back what they wanted, and they were fairly successful at that. I mean, so that was the way to go, and well, I understood law. My parents had some friends who were lawyers that I could relate to. I thought, "Well, I'll major in chemistry. I'll go back the next year." And so the following fall, I just totally enrolled in chemistry and math and all that sort of stuff. So I didn't have a background in it. I didn't have parents in it. I didn't know anything. I mean, at that point in time in my life, I didn't even know what an engineer did. And I went into these classes, and I was surrounded by these people that had been . . . were like valedictorian—people who had done science and math, and they were

really good at it, and all this sort of stuff. I mean, within three or four weeks, I was failing. I mean, I couldn't do the math. That's in particular what I couldn't do. And I just freaked out. I thought, "I'm not smart, and these people are smart. I'm a political person. I'm a political people person, I'm not a scientist. I can't compete with these people." And I dropped out because I thought whatever I'm going to do, I don't want to totally destroy my GPA.

I thought, "I just have to get out of this and start over again." I dropped out, and I had to have an interview with the dean. And the dean called my mother and said, "Well, she had the most reasoned reason for dropping out I've ever heard a student do." Everybody was okay with it and all this sort of stuff. And that was a good experience too because when I dropped out, the first job I got when I was in Washington was at a jeans store. And everybody should work at retail store at some time in their life because that will help motivate them to go to college. I mean, I was only there probably for three weeks, but it was so boring. It was so overwhelmingly boring. And then I got a job with a professional society of the Foreign Service Officers of the State Department, at the American Foreign Services Association, which is still in Washington at the corner of E and 21st Street or 20th Street—wherever it is. Anyway, I got a much better job, and then I went back to school and majored in political science again and took these classes. And one of the classes you have to take when you take political science is statistics. It was, of course, statistics for social scientists, so it was relatively easy. I went in there and I did statistics, sort of, with one hand tied behind my back. And I had such a high grade that I'd actually tested out of having to take the final. I had put zero effort into this, you know. I remember walking to the final, and the teacher said, the professor said to me, "You know you don't have to take this final." I said, "Oh yeah." I didn't know that. I said, "Well, don't worry. I didn't study for it. You know, I didn't really work hard for you." He goes, "I didn't think you did." So I walked out, and it was like maybe I do have some skills in that area.

And so the following fall, I decided to major in chemistry again, only this time I took it a little slower. And sure enough, with that confidence, I mean, I took the same **<T: 30 min>** math class. And I'm in this class, and I'm thinking, "What did I think was so hard about that?" Because it wasn't that hard, but the difference was I had confidence. I knew I could do it. And the first time, I didn't have confidence. It is amazing to me how I could not understand math without confidence, and then a year later, with confidence, it came easily. And then I got a bachelor's degree in chemistry.

**DOMUSH:** So now, after that second time of, kind of, going into chemistry and the math and realizing that you could do it, especially once you, kind of, believed that you could do it, that you were able to, did you try and figure out if there was a way that you could balance the chemistry and the interest in political science? Or did you just decide I can do this, and I'm going to stick with the chemistry and push the political science to the side?

**JACKSON:** You know, I didn't . . . you know, Dr. Perros had told me that I could find jobs in the political world with my chemistry degree, and he had convinced me enough about the environment and things like that, that I didn't worry about what I was going to do. I just enjoyed

the chemistry. And I really enjoyed the chemistry. I loved chemistry. It turns out I loved chemistry. I loved being in the lab, and I just really, really enjoyed it. It was just great. I remember the rest of my college, sort of, studies being just enjoying chemistry, learning it, struggling with some of it, you know, of course, because chemistry isn't easy, but enjoying that challenge and loving to do it, and finding every day interesting. And I don't know. I loved it. I just really, really liked it.

**DOMUSH:** Now I'm curious because of my own background in chemistry, and my interest was always organic chemistry. And for me what was hardest was the math. My math skills for as long as I can remember—and I'm thinking back to even the third grade—were not . . . . I just never had any confidence in the math. And it was always the hardest thing for me, and it was always surprising to people when I would tell them that I was a chemistry major, and I hate math. And so then of course, I picked the area of chemistry that in theory has the least math.

**JACKSON:** The least amount of math, right.

**DOMUSH:** Now, of course, that meant I was not excused from taking all of the math-heavy chemistry courses, but I'm curious if the, kind of, difficulties that you had with the math early on, if that carried over into any of your interests or once you got past it . . . ?

**JACKSON:** No, once I got past it, it was over. I mean, math was not necessarily my favorite. It was never my favorite, but I realized I was plenty good enough in it to do whatever I wanted to, that it wasn't going to limit me, that math was not the limiting factor. My new confidence in math translated over into physical chemistry. I mean, I don't even remember using math in physical chemistry. You know, I mean, obviously, we did, or in physics and all that sort of stuff. But it came easily enough that I don't remember it being an issue. I just remember enjoying or wondering how the hell they knew what those orbitals looked like, you know, and I realized it was math, and I understood that. Anyway, so it was . . . so I don't ever remember having any problems with math the rest of college. I mean, I remember struggling a little with calculus, but even that, it was still . . . it was doable. I just had to work at it. And so yeah, I never remember it being a problem after that. It was quite a transformation.

**DOMUSH:** Quite. [laughter]

**JACKSON:** It's amazing what a little confidence can do.

**DOMUSH:** What did your parents have to say?

**JACKSON:** Well, you know, my mother, I'm sure that . . . my mother is where I inherited that capability, I think. You know, my mother always had . . . . I remember her once saying that when she was tested for her vocational skills or whatever it was, that they told her she should be an engineer. And in retrospect, I can see that she probably would have been a very good engineer. She was good at math. They thought that was cool, you know, that I was going into chemistry. They thought that was very interesting. They didn't care as long as I was happy. I mean, it's not like you can go wrong with chemistry. And what you have to understand is that what happened in the middle **<T: 35 min>** of that too in all that was that after . . . . I guess it was at the end of the year where I had my—in my second year—when I had gone back to political science, towards the end of that year or early that fall, I lost every political contact in one election.

**DOMUSH:** Oh wow.

**JACKSON:** Now, you have to remember I made all these contacts on my own.

**DOMUSH:** Right.

**JACKSON:** It was not through my family or anything like that. And my senator retired. My congressman who ran for his space lost. And even a connection with another candidate in Missouri didn't work because he died in an airplane crash on election eve. It must be something that happens; of course, that happened later to [Mel] Carnahan. But, it was . . . so I lost them all, and I thought, "If this can happen to me when I'm nineteen, what's going to happen to me when I'm forty, you know?" It just . . . so there were other motivations. There was an understanding that chemistry would probably give me more to fall back on. I could get a political job as a chemist, but I could get a chemistry job as a chemist. If I was in political science, I could only get a political job. I, kind of, saw this as . . . so I also saw chemistry as a way to be more flexible. You know, I could do a lot more things with it than I could with just a political science degree. There was that that helped me in that decision.

**DOMUSH:** And I'm curious if you noticed or if you recall when you looked around in your chemistry courses or at who the chemistry majors were versus maybe who the political science majors were, what the breakdown of men versus women was? Or if that was even something that you paid attention to?

**JACKSON:** You know, I really didn't. I mean, there were so many alpha males trying to get into politics at George Washington University that probably chemistry seemed like a much more civilized and genteel sort of culture. And that probably had some . . . that probably was why I

felt comfortable there. I didn't socialize with chemists. There was only one real chemist that I made friends with that for some reason he and I ended up in a lot of the same classes together. But he was so much smarter than I was, who I'm still in touch with, actually, [Scott Han], very smart, went on to get his PhD in chemistry from F. Albert Cotton at Texas A&M [University] at that time and everything. So anyway, so Scott was much smarter than I was, and he hated biology, so he helped me with chemistry. I helped him with biology. He's the only one I really, sort of, remember being friends with the whole time, who I liked, because I mostly hung out with other people and did other things—you know, my residential community and this sort of thing.

**DOMUSH:** Well, and, kind of, by the time you established yourself in the chemistry major, you already had . . .

**JACKSON:** Right, I already had friends, and I was already involved, yeah.

**DOMUSH:** Right. After you graduated from George Washington, I think I read that you moved on and worked in the education department at ACS [American Chemical Society]. But I don't know if that was right away.

**JACKSON:** Yeah. So I graduated. There I am, graduated. Well, you know, all I have are the job-thinking skills of a political scientist. [. . .] The last two years I was in college, I was a resident assistant in the dorms, which at GWU was a fabulous program, and it paid for my tuition and my room. I mean, it was a really good thing. But my last semester, they moved to this small, little dorm that was a special program dorm, the RA [resident assistant] had quit or stepped down, whatever. I filled in for her. It was a wonderful experience. And because it was a small little dorm, I actually ended up staying in that dorm for almost a month after school ended for some reason because they didn't need to kick me out or whatever it was. I mean, I was allowed to stay there. I remember that it was that time period, you know, at the end of May and through—I mean, through the end of April and through May—that I started looking for a job. And I bought two outfits. I bought a suit for an interview, and I bought a cocktail dress. I used the cocktail dress to go up to . . . at that time, the Republican National Committee had these . . . . I think they were Friday night receptions **<T: 40 min>** where all these young people would go to the cocktail party, sort of, thing. That's how you meet people in your job in Washington. So I went up there obviously with some friends, and I went to these cocktail parties. I would tell people or people would . . . and I was looking for a job, you know. I met this one guy there and he said, "Well, what do you do?" I said, "I'm a chemist." He goes, oh. He goes, "I took chemistry in high school. I have this chemistry question for you. What do you think of this?" And he wrote down this really complicated organic structure. I looked at it, and I said, "You know a lot more about chemistry than just taking it in high school." And he turned out to be a PhD chemist who worked for EPA [US Environmental Protection Agency]. And through him, I was able to get an interview at EPA. During that time, for the Toxic Substances Control Act—it

was the beginning of TSCA, and this was the TSCA area. And then at the same time, I answered an ad in the *Washington Post* for a job . . .

**DOMUSH:** Before you go on, do you remember who that was that you . . . ?

**JACKSON:** Oh, absolutely. I just thought . . . Carl Mazza. And I actually . . . you know, the chemistry world is a small world. [. . .] Carl Mazza is still at EPA, and he helped me out a year ago with connecting me with somebody who helped me with my program at Sandia [National Laboratories]. We had lunch, and, anyway, Carl, wonderful person, helped me in that time. [I] actually dated him for a year. That was later. But anyway, that's another story. But that's part of how we formed the friendship and kept in touch through the years. He's actually helped me several times in my career with connecting me with people in the environmental area that I needed.

But anyway, so I answered an ad in the *Washington Post*, and it was for a job at ACS. They wanted somebody with a year's worth of experience, but it sounded really interesting to me, so I really went in there and sold myself, because I had that year of—almost year, nine months—of public relations work in St. Louis before I went to college, and for some reason I got the job. And my mentor and later boyfriend, Carl, had worked actually at both places, EPA and ACS. He helped me make that decision as to which I wanted to do, and he was very helpful. I ended up choosing ACS in part because . . . . I felt guilty about it, because I was really interested in environment. But you know what? I was burned out. I was tired. I had gotten this chemistry degree. I had worked as a resident assistant, which was a very big job, and, you know, I was, kind of, ready to just do something interesting, it paid a lot more than the EPA did, and learn what there is out there in my field. I mean, what better place than your professional society, right? So that's what I did. So I worked in the education department of ACS, started that summer—June something or July—and worked there for several years.

**DOMUSH:** Now, did you have any thoughts of maybe I'll work at ACS for a couple of years, and then I can go and try and work at EPA and do some of this environmental stuff? Especially because you had said that that was one of the original interests going into chemistry.

**JACKSON:** Actually, what I thought I would do is go to some kind of graduate or professional school. That's what I really thought. I'll work for a while, and I'll figure out what kind of grad school—law school or grad school, whatever, you know, medical school. I mean, I didn't know. I will figure out what I'll . . . you know, my thought was I'll work for a while and go to graduate school. I just didn't know what I wanted to do. Yeah, so I didn't expect to be there forever. I expected to go on and get some kind of graduate degree. But I didn't know what, so this was a good way to figure it out.

**DOMUSH:** You were at ACS for a couple of years, and then did you go right from ACS to University of Texas [Austin]?

**JACKSON:** I did, pretty much. I worked full time at ACS for two years, and then I quit my full-time job, but I continued to work part-time as—I don't know—they called it a consultant, but that of course wasn't . . . I was more a freelancer. And I also [. . .] became a lab assistant at GW and did a lot of, taught a lot of classes—different classes—and things like this. It was really . . . because I was thinking along the lines of . . . anyway, it was a really good experience that I got to teach, and I do like it, you know, all that sort of stuff, but at this point I was applying **<T: 45 min>** for graduate school. And once again I, kind of, lost confidence. I had originally thought I would go get a PhD in chemistry, but I thought, "I'm just not that smart and technical and whatever." I decided what I would do is I would go and get a master's degree in chemical engineering. Why I thought that, I have no absolutely idea. But I thought that it would be easier than getting a PhD because PhD just seemed so enormous to me, and chemistry, I mean, I didn't know anybody who did anything like that. It was just . . . except these people I met at ACS, and they were clearly really smart, and anyway, also I mean, being very . . . . I don't know, anyway. So I ended up going to Texas. At Texas, because I was switching fields, I didn't get a graduate assistantship right away. But at Texas, at that time, that's where the *Journal of Chemical Education* was published. I got a position as an editorial assistant with them my first year of grad school, which then allowed me to have in-state tuition at Texas, which at time was two hundred dollars. I mean, it was just obscenely low. It was just unbelievable. And [I] could go to this great school and could afford it, and then by the second year, I latched onto a professor. I had taken a lot of undergraduate classes and then went on. I loved research.

And the other thing too was that when I worked at ACS, the first place that I worked, where I worked when I was full-time was with the Committee on Professional Training [CPT], which is the group that approves chemistry programs. Next year, 2011, my presidential year, they're going to be celebrating their seventy-fifth anniversary, which is, kind of, cool that I have a history with them and that they're celebrating and everything. And on that, in those days, when people felt more of an obligation to their profession, it attracted a very, very impressive group of people on CPT. I worked with Ernest [L.] Eliel and Harry [B.] Gray and Harry [S.] Mosher and somebody else, Eli [M.] Pearce, who then was President of ACS. But it was probably Harry Gray who had the greatest impression on me. I don't know if you know Harry Gray.

**DOMUSH:** I've met him, and if he was as exuberant and boisterous as when I met him, he makes an impression quite easily.

**JACKSON:** Harry Gray personifies my definition of charisma. I mean, that man is lovable. I mean, so you know, speaking of important people who influenced me in my life, I told you about my father, Theodore Perros, and now, you know, Harry Gray. And the thing about Harry Gray was that . . . so even though I knew I was smart enough to get a bachelor's degree in

chemistry, I still thought of myself as having my strongest skills in working with people and being politically astute. I never wanted to go into politics, myself, because I just . . . it was just too, you had to be too . . .

**DOMUSH:** It's very front and center.

**JACKSON:** Yeah, right. But I loved political strategy. In my thought, my goal was always to be a political strategist, to be the campaign manager. I wanted to be the [David M.] Axelrod to somebody's Obama, you know. I did not want to be the Obama. That was not of interest to me. I wanted to be behind the scenes. I was a strategist, I loved politics, I loved strategizing, and that's what I wanted to do. [. . .] I felt like I have those political skills, the people skills, and this sort of thing. When I met Harry Gray, suddenly I realized that—and this is so obvious in retrospect, you know, I feel stupid even saying this—but it became very clear to me that having people skills and being able to motivate people and attracting the best and the brightest to you, made you a better scientist. And until I met Harry Gray, I did not know that, you know, because I thought, like a lot of people probably think, that scientists, they work by themselves, and they work individually, and they just are really smart, and that's all it takes. I didn't have that whole sense for that science has a lot to do with great minds coming together and thinking about things. **<T: 50 min>** And if you could attract people, if you could work with people better, then you get to work with smarter people, and it's more interesting, and it's exciting, and better minds—all that sort of stuff that is, of course, obvious to me now and hard to remember that I didn't know. But it was watching and learning about Harry Gray that [is] where I learned that. I think that played a role.

When I went to graduate school . . . and, of course, once again, I loved research and I loved the chemical things. And I liked chemical engineering because I was more applied. You know, I had this desire to use my chemistry for something. I did not want to be just the chemist in basic science, and that also had to do with why I backed off from the chemistry side and went into chemical engineering. I loved it and I just loved research.

In fact, my experience with research, I wrote it up. The *C&E* [*Chemical and Engineering*] *News* had a—I think it was their seventy-fifth anniversary or one hundredth and I don't know, whatever it was—they had this periodic table. There was an essay on every one of the elements. I wrote the essay on zirconium, right?[6] And to me . . . and if you read that, I mean, it was funny because they asked me to write it on an element. I said, "I want to write on zirconium." And they said, "Okay, nobody's taken that one yet." And I sat down, and I wrote that article in, like, an hour. I mean, of course, it had to be edited and all that sort of stuff, but it was a story out there that I just had such a wonderful experience about learning in research and things didn't always go the way—the results could be definitive—but they always didn't go the way I expected. That was so fascinating to me. It was solving a problem, and it was just so cool. Anyway, so I ended up getting a PhD in it, and not, of course, in a straightforward manner,

[6] Nancy B. Jackson, "Zirconium," *Chemical & Engineering News* 81 (2003): 104.

because a lot of my life doesn't go in a straightforward manner. I mean, I love Texas. I went to Northwestern University. That didn't work out. Northwestern was having huge problems with their chemical engineering department at that time, and it turns out that also I didn't do well living in a place that was dark all the time, so between those two things, I ended up going back to Texas and getting my PhD there, which I never regret. It was fantastic. And I don't know whatever made me think I should have left, but anyway, that's another story.

**DOMUSH:** Now, did you ever . . . or did you apply, did you consider going to Caltech [California Institute of Technology] and working with Harry Gray?

**JACKSON:** It's funny that you say that, because . . . no, because I'm not smart enough to go to Caltech, right? It never once crossed my mind. And after I was . . . well, actually, I ended up . . . . I was initially accepted into a PhD program at Stanford [University], which was the most amazing thing that ever happened to me. I mean, that anybody thought I could be smart enough to get a PhD at Stanford was like, well, what . . . you know, that was just amazing. And I told Harry about it afterwards, and he said, "What? Did you apply into graduate school? Why didn't you apply to Caltech?" I'm like, "Ah, hmm. That's a thought." But by then anyway, I was beyond that. It was, "Oh, you mean you could get me into Caltech?" You know, it's just . . . . I don't know. That was probably way too intimidating for me. So that had a lot to do with it.

**DOMUSH:** Caltech does sound very intimidating. But it's certainly not . . . University of Texas is not . . .

**JACKSON:** And chemical engineering, what was I thinking? You know, when you talk about math. I mean, it was just . . . anyway. I would have probably done okay there, but I would have done fine. But I really am glad I went into chemical engineering because although I may not be the greatest chemical engineer in the world from a more traditional stance, now I feel like I really have an understanding of both sides of chemistry and chemical engineering. Anyway, I had a great experience in graduate school. I loved it, especially on the doctoral side, when I got all the classes, and I was just doing the research. And I was really doing very much chemistry, but it was an applied chemistry sort of thing. I was doing catalysis, heterogeneous catalysis, and it was very chemical, and it was understanding reactions on surfaces, and all that sort of stuff. But it had an application. It was an energy application, and it was **<T: 55 min>** the right choice, even though in some ways it was a harder and much longer road for me. It was a great way to apply my love of chemistry, and my love of research, and it was energy-related, so it was good for the world, and it was all those things.

**DOMUSH:** How was . . . . I'm probably going to say his name wrong, but I think you worked for John [G.] Ekerdt?

**JACKSON:** Ekerdt, [yes].

**DOMUSH:** How was the experience of working with him?

**JACKSON:** Oh, he was great. It was great. He was a great advisor. He is a wonderful human being. And, you know, John is a person first and a professor second, and he just was . . . so I liked him. He was my kind of person in that sense. He was a good person, and he cared about his grad students. And, you know, he wanted people to learn, and he does the right . . . . I mean, he's just a good person. John was at one time interested in becoming a priest and went off to school and this sort of thing, and so he had a strong value system in valuing people and doing the right thing, you know. He was my kind of professor. He was my kind of person. John, we're still in touch to this day. I've watched his kids grow up and he's just a good . . . he was great. He was just the right person for me.

**DOMUSH:** Good.

**JACKSON:** In many ways.

**DOMUSH:** How was the group? Was it large? Was it small? Was it . . . ?

**JACKSON:** It was medium size. It was, in my mind, just the right size, and I think for John the right size, because he's always kept his group that way. He doesn't want to have, you know, forty people. He likes students. He wants to get to know them, and all that sort of stuff. It varied from six to ten, you know, sort of thing. He did have a bit of a problem towards the end getting people out the door, you know, because he's just, you know, "I want you to do one more thing," and that was the only downside of John. But for me that worked out quite well because I started going to interview probably too early, but I was being optimistic, and John was encouraging me to do it. I accepted a job at Chevron [Corporation] in California, and then I went back to work, and I worked, and I worked. I thought I was going to be done in six months, but it was at least a year. And during that time, unknown to my colleagues and everything, I started dating one of my colleagues in the group. But we had, you know, it was a very, very . . . that department was such a friendly group. That department—graduate chemical engineering department—at the University of Texas fielded three softball teams.

**DOMUSH:** Wow. [laughter]

**JACKSON:** Like, two men's and one co-ed. I mean, that was the kind of organization, that's the kind of group it was. I mean, people were friendly. They got along. It was a big great time. Everybody liked each other. It was just a wonderful organization—I mean, wonderful group. I was hanging out with the grad students, and nobody kind of noticed that Jim [James E. Miller] and I were always together, because we were always together, because everybody was always together, and we were in the group—you know, who could tell. Anyway, a very rich friend of mine gave me a big check for graduation. I was just about to graduate. And he knew what he was giving . . . he gave it to me because one of my best friends from college lived in Pakistan. She was an American, and in fact that's the friend I'm going to have lunch with today. She was an American. She was a Jewish-American, and she had married an Italian man, whose family had business in Pakistan, and she had moved to Pakistan. And so this very rich friend gave me enough money to go to Pakistan as a graduation gift for a month.

**DOMUSH:** Wow.

**JACKSON:** Wow, yeah. It was really incredible. And actually, that's the friend I'm having lunch with in Chicago, [Illinois], tomorrow or Thursday. So anyway, it's . . . so I thought I was going to be done. Of course, once again I thought I was going to be done before I went to **<T: 60 min>** Pakistan, but I hadn't finished. I was all . . . . I had written it. I had turned it in to my committee. And so then I was going to go to Pakistan. You know, so I was pretty much done, but I [was] just all but finishing up the fine touches and this sort of thing. I remember . . . so this is the kind of professor John is. I go to John, and I said, "John, I'm going to Pakistan for a month. Afterwards I'll come home to fix those graphs to look just right and defend." You know, I had written all my papers and all sort of stuff, and so he was happy. "And then I'll defend. I'll finish." I said, "Now, if I die in Pakistan . . ." Because, you know, Pakistan was a dangerous place even then, although less dangerous than it is now. This was 1989, fall of 1989. [I said,] "I want you to give me that doctorate posthumously." I said, "I do not want to be lying in death in Pakistan and think I'm never getting that damn PhD" And he's like, okay. [laughter] And I believed him because when he gave his word, I could die in peace in Pakistan if I had to.

**DOMUSH:** Luckily, that wasn't the case.

**JACKSON:** Right. And I said to Jim, I said, "Jim, you know, I'm thirty-three years old. I'm tired of having long-distance relationships. Either we're getting married or breaking up, and I'm going to California." And I got on the plane, and I went to Pakistan. And I knew I was going to get that PhD even if I died. I didn't know what was going to happen to me when I returned, but I had a fabulous trip in Pakistan. It was the trip of a lifetime. I got to go through the Khyber Pass that one time all the way to Afghanistan. It was probably the only time in the last thirty years I could have done that in thirty, forty years. It was great. I came back. Jim met me at the airport, and said, "Let's get married." I told Chevron, sorry. Well, I went in, and I told Dr. John that . . . . I said, "Well, I'm not going to Chevron. I've decided to get married." He's like, oh okay,

because by this point, of course, John never knew what he was going to hear from me. [laughter] And so he was like, "Who are you marrying?" And I said, Jim. He said, "Our Jim?" I said, "Yes, our Jim." Anyway, he helped me get a postdoc. Jim was farther away from graduating, and so he helped me get a postdoc with another professor at Texas [Adam Heller], and I stayed about another year and did a postdoc. Then Jim and I looked together for jobs; we got married and looked together for jobs. We ended up at Sandia, which of course for me was ideal because it was a national lab. Now my life had, sort of, made full circle, because I was back at a national lab where policy was important, and that was part of what they did and were involved in. The research that they did there was very related to the national interest, and that meant there was always a large degree of policy and politics and government and whatever in what was done at Sandia.

**DOMUSH:** Well, before we go on, we've been talking for about an hour. Do we need to take a quick break or anything? I can pause the recorder.

**JACKSON:** Sure. Please.

[END OF AUDIO, FILE 1.1]

**DOMUSH:** Okay, back after a short break. And we had just started talking about how you and Jim . . . going to Sandia National Laboratory. It was, kind of, as you said, things coming full circle. It wasn't politics, but it was a national lab. There was kind of a policy initiative, and there was a national outlook on this. And before we talk a little bit more about your time at Sandia, I'm just curious if when you were looking at jobs, if you were interested at all in looking at academic positions and looking at teaching. Because you had had that kind of teaching assistant experience, and I was just curious if you had looked at that at all.

**JACKSON:** No, we didn't. We didn't, I didn't look at it at all. I did enjoy the teaching, but it wasn't really something I could see myself doing forever. [. . .] You see the way your professor hustles and how he works to try to get funding and this sort of thing. You know, it's not as attractive. I just didn't want to be in that game. We interviewed at industry and national labs basically—in a national lab. We only interviewed at Sandia. But we interviewed with industry and Sandia and ended up taking the Sandia job.

**DOMUSH:** Okay. So tell me a little bit about what the transition was like from University of Texas to Sandia. Had you ever been to Albuquerque before?

**JACKSON:** A little, you know, a few times, but I had never . . . I mean, Austin, [Texas], was as far west as I had ever lived. So it was moving to the West. Jim, my husband, is eight-and-a-half years younger than I am. That's what happens when you go to grad school late, I guess. You know, I don't know. [. . .] He was behind me in school. Even though I had taken that year-long postdoc, I still started Sandia about six months before he did. So I had to move on my own, which is kind of tough, because when you're married, but you're by yourself, and you're in a new city . . . but it was okay because it was a whole new experience. Now, you have to understand that, I had never . . . because I look white, I had never really told many people about my Native background. Because it was . . . . I mean, after I left home . . . . when I was at home, everybody knew because they could just see it in my father. They knew it because my father has black hair and black eyes and dark skin. You know, you don't have to tell people. But because it was personal. It was not something I trusted that anybody else would understand. Also, I didn't want anybody to take advantage of it. At that point in time affirmative action had begun, and it made a difference. And I didn't want anybody to get credit for it, unless . . . . I mean, I just didn't want anybody to get credit. I just didn't want anybody to get . . . because it wasn't . . . . I just don't know. I don't know if I can explain it. But it was just something I didn't want to talk to others unless I thought they would understand, and most people I didn't think they would understand. So I never brought that up. I never let people know about that side of myself or anything. It was a very private sort of thing. It was a family sort of thing.

But when I went to Sandia, and I lived in Albuquerque, it was a large Native American community. And Sandia at that time was very involved in the Native American community, and in Native American science education nationally. It was like, okay, you know, even when I interviewed, I saw that and learned that, I said, okay. And I told them, "You can count me as Native American because I see opportunities here where I can use it, and I can be involved." And that's exactly what I did. I mean, I wasn't there long before I started getting involved in some of the education programs, particularly on the Native American side of the science education programs. That was a really . . . that was just fantastic, a great opportunity for me in that way. I did that, started getting involved in that even before Jim joined me—that was six months **<T: 05 min>** later.

**DOMUSH:** So how long had Sandia been involved in the education programs for the Native American tribes? I mean, was that something new for them, as well?

**JACKSON:** Not that new. I mean, AISES had actually started at Sandia.

**DOMUSH:** Oh, okay.

**JACKSON:** It was started at a meeting that was held at Sandia or in Albuquerque with a group of Native Americans in sciences. New Mexico is a very, very unique state. It is the only minority majority state in the Union, has been since I arrived in . . . . I mean, before I arrived in

New Mexico. It's very Hispanic. It's very Native American. It was interesting the first governor's election that I experienced in New Mexico that I was there for was swayed by the Native American vote. It was a Native American . . . New Mexico was one of these states that's, like half Democrat, half Republican, and it can go either way, and it tends to follow the national norms. The Democrats really pissed off the Native American population there, and so New Mexico spent the next eight years with a Republican governor, you know. And they haven't done that again. [laughter] They've been careful ever since then. You know, but they had started taking that constituency for granted, and it was, kind of, funny to watch. But that was definitely the swing vote.

So it's a very different place than the rest of the US. At that time, let's see, I arrived during the Clinton administration, and so there was great emphasis on affirmative action and—no, I'm sorry. What am I saying? I arrived in the Bush administration, the first Bush administration. But even then, I mean, George Bush was very supportive of affirmative action and scientific education. The first George Bush was a very strong STEM education supporter. And so people were involved in programs and particularly the Department of Energy because they're science oriented, and they want to get more represented in minorities into science. They were involved in this sort of thing when I got there. They already had good programs going. They had this one program where they were working with schools and other national labs. They did not have a Native American component to it. That's when I became involved in helping them get a Native American component into this program. And I worked with a colleague from Los Alamos [National Laboratory], and it was a great adventure. It was something I just did part-time along with my regular research job that went on there that I did. I did research once again; that was energy-related research. It was a great opportunity there too.

**DOMUSH:** Now was the non-research aspect, working with the schools and working with these education committees . . . . I've spoken with some other people through these Women in Chemistry interviews, and they've talked about when they have women in science or minorities in science education programs that it was very important that the people who work on those committees that that was recognized as part of their job. So that they didn't . . . not get taken advantage of, but unintentionally get taken advantage of, that it wasn't the case that they'll just say, "Oh, so-and-so is doing this out of the goodness of their heart, and they'll just keep doing it." Then years pass and no one's paid attention to that person anymore. So it was very important to the people that have spoken about it that this be something that was kind of recognized as part of your job, however long you were doing it. Was that the case for you that it was recognized?

**JACKSON:** It was. It was, because actually, I don't . . . . I mean, I had a really good boss when I first went there, Howard [P.] Stephens, so once again, another influential person. Howard did more for me than I think I realized at the time. He was very helpful to me. Unfortunately, he retired only a couple of years after I had been there because he was probably one of the best bosses I ever had at Sandia. But Howard was very supportive. That sort of thing was supported, but more <**T: 10 min**> importantly, now Sandia and probably most labs are like this, national

labs are like this. But Sandia is a small community of people who tend to work there their whole lives, so it's like working in a small town. You know, everybody knows who you are. You develop a reputation. You can change that over time, but it's very difficult. You establish a reputation from the beginning. You get to know people and who you know can make a difference and all that sort of stuff, although I did not know this at the time I started. But what the education program did for me was that it allowed me to get outside of just my little space, my little department that I worked in. I got to know other Sandians in the lab and make connections across the lab.

There may have been downsides to my working in there, and I may not have been able to spend as much time or do as much for my research as I could have, and all those sorts of things. But the connections that made me with the rest of the lab and the people I got to know more than paid off for maybe the loss I had in the research area. [. . .] It was a positive thing overall. At that point in time, I was just chilling. I mean, I was just enjoying myself, enjoying doing research. I didn't have any long-term goals or . . . you know, I was just enjoying what I was doing.

**DOMUSH:** Right. Now how did the research go when you first arrived? You were doing catalysis research with energy applications. And I believe that you kept doing that for quite some time.

**JACKSON:** Yes, right.

**DOMUSH:** Did you know going in what type of research you would be doing, or did you get to guide your research?

**JACKSON:** Gosh, I must have been one of the last people that was hired at Sandia with a chunk of money to work with, and I did have that for several years. And I did work . . . it was a tough area to be in. I probably didn't . . . you know, it was difficult. It was difficult to set up. It was a difficult thing, and I don't think I did some of the things I initially was supposed to do. I didn't probably do very well, which was the testing of catalysts, partly because it was boring. [laughter] I mean, building a certain kind of reactor and just testing catalysts to see how they worked just sounded extremely boring to me. And my technician I had working with me, assigned to me, he was learning a whole new field, and I didn't really know much about high pressure, those kinds of reactors, slurry reactors, and this sort of thing.

I was more interested in characterization and all this sort of stuff. I did end up doing a lot of that. I collaborated with a professor [Abhaya K. Datye] down the street at the University of New Mexico. We studied certain catalysts together, and it was very interesting, and we characterized it. So in that sense, I did some really interesting research and this sort of stuff. I probably didn't do as much as what my first boss, kind of, wanted me to do as far as testing

catalysts, but I'm not sure that would have really paid off in the long run. But the collaboration with the professor . . . and that was just so great, and that was really interesting. Eventually I was drawn more into what we would call the programmatic aspects of the program. I wanted to see ways I could grow the catalysis program. I could see in the US there wasn't a whole lot of . . . I don't know. I thought we could do better at catalysis, and the national labs could do a lot better in catalysis. We had a lot of things to offer to catalysis. So I, sort of, got more and more involved in that area of sort of the programmatic aspects in . . . see, I'm trying to think when. This was a little later. But in the mid-1990s or something. So I started in Sandia in June of 1990, and by about the mid-1990s, there was a program going on that was being sponsored by the Department of Energy and I don't know who else called [Chemical Industry] Vision 2020 [Technology Partnership]. It was a study that was going on about the future of the chemical industry in the United States and what kind of research needed to be done **<T: 15 min>** so that in twenty-five years, which would have been in 2020, that the US chemical industry could remain strong and thriving because it was one of the few major export industries in the United States at that time.

There was a lot of work done to see what kinds of investments needed to be made in research in various areas, not just research, but what kind of policies or investments, as well as research. So I headed up the catalysis area and wrote that story, and that sort of thing. And that was not as clean as it sounds. It was a power struggle to get that, to be able to lead that and make that happen. It involved a lot of collaboration with others, but it was also very interesting, and I got to know a lot of people. And, as in most things in Washington, if you can lead these sorts of things, then you can help get money to your organization. It helped through . . . we got in a fair amount of money from the Department of Energy, the—let's see—OIT. What was that? Office of Industrial Technologies. They were funding a lot of research, collaborative research with industry. I was able to bring in some money for Sandia through that, and working with industries and involving programs, the LDRD Program at Sandia, which is the internally funded research at national labs, Laboratory Directed Research and Development. And we did catalysis. I slowly but surely became more and more involved in programmatic aspects in helping figure out how things should be funded and bringing in money, working with industry, and working with fossil fuels and organizations at DOE as well because it's just what I liked doing, it turns out. I like building programs.

**DOMUSH:** As you moved kind of more towards this programmatic aspect, does that entail a decreased amount of time that you're spending actually doing . . . ?

**JACKSON:** Yes.

**DOMUSH:** Research? Okay.

**JACKSON:** But at this point in time, I had gotten used to doing that, because . . . so I came in 1990. Was it 1990? Yeah, it must have been. What am I saying? It was 1991—June of 1991—that I started. In November of 1993, I gave birth to twin boys [Christopher and Jackson]. And I worked for the next two years part time. The first three months after they were born, I didn't work at all. The second three months, I worked twenty hours a week, and for the following year-and-a-half, I worked thirty hours a week. It was, sort of, flexible, a little more and a little less. I learned to use my money to fund . . . that's when I first started getting involved with the professor at the University of New Mexico was that because I didn't have to pay as much of my salary with my money. So I had extra money, so I had a postdoc and I collaborated with Abhaya Datye at the University of New Mexico. And we did this sort of thing. I had heard Abhaya Datye talk when I was a graduate student at Texas. He had come and given a seminar. I had been completely fascinated by his work, and I hadn't really realized when I went to Sandia that he worked . . .

**DOMUSH:** That he was down the street.

**JACKSON:** I hadn't connected that until later when I realized that I needed to sort of delegate some of my money and my responsibilities to others. I was like, "Whoa, cool. I get to work with Abhaya." [. . .] He does microscopy, and he takes these really cool pictures. He gets great insight into how catalysts work by doing what he does, and I think we did some really great work in this area. But, of course, anyway, that's another story.

I was, sort of, used to delegating my research by that point in time. That's what I continued to do. As I became more successful, people would give me some program development money so I could fund some of my time to really doing this sort of thing, so that's what I did for a number of years. And Jim eventually, my husband eventually came and worked in the catalysis area. That wasn't where he first entered into Sandia, but he then was working in the catalysis area. I thought we made a good team because he loved research, didn't like going out to get money. He's very smart. Jim is very, very smart, and **<T: 20 min>** he likes that sort of stuff. I like going out and getting money. He loves having people get money for him.

**DOMUSH:** It sounds like a good match.

**JACKSON:** It was a good match. So we had a lot of . . . you know, so it wasn't just him, but it was others in the group, and that's kind of the way it worked for quite a while.

**DOMUSH:** And while you're doing this, as you're moving more and more into the programmatic and management aspects of it . . .

**JACKSON:** Development, yeah.

**DOMUSH:** Development. You're also still involved with the education groups and the Native American aspects.

**JACKSON:** Yeah, I'm always overextended. It's a habit I picked up from my father. I'll blame him directly. [laughter]

**DOMUSH:** Well, now it's recorded.

**JACKSON:** That's right. And I've told him that many times.

**DOMUSH:** The transition, I believe to—I may get the name of this wrong—but in about 2000, you became Manager of the Chemical and Biochemical Sensing group.

**JACKSON:** I had an experience . . . okay, so I'm getting more involved in program development. And I really don't want to become a manager. I like where I am; it's, sort of, as a PI. I mean, I did some really interesting things. I'm still a PI, but I'm bringing in money, and so I'm leading research, and I'm helping my colleagues in getting their stuff. It's really a great sort of balance of things.

At one point, I went so far in my Native American activities to spend a certain percentage of my time in the Government Relations Office at Sandia. I was a Tribal Government Liaison. It was a . . . . I don't remember. It was supposed to be 12 percent of my time. Of course, eventually I had to give it up because it was a lot more than 12 percent of my time. But that not only availed me of learning about tribal governments and interacting with tribal governments, but that I also was sitting in the Government Relations meetings. Of course, you know, I just, like, sat there and drooled the whole time. I loved that, you know. It was just fascinating. It was just so cool. I was willing to spend that extra time to get to sit and learn about government relationships and learn about . . . and they have a very broad view of Sandia, so I learned about Sandia from this broad view perspective and how the labs were perceived by government and all this sort of stuff. It was just . . . the whole thing was fascinating. [. . .]

A lot of this Vision 2020 stuff and everything like that, I did through the American Chemical Society. I used my interactions with the Division of Industrial and Engineering Chemistry to get me that card to lead catalysis to do these things. I remember I had that catalysis meeting at the American Chemical Society building. A lot of this stuff that I'm doing, I'm raising money and all this sort of stuff, and being a program leader in catalysis, I'm doing through the American Chemical Society. ACS is enabling me to do my job even better. I mean,

it was just such a . . . it was a very good relationship. It was a very good opportunity for me. ACS loves their volunteers, and it was very helpful to me for my job. So it was a great thing.

But during this time, there was a colleague . . . not really a colleague. He was at a manager's level. He was at a higher level than I was—who I would call—I don't know what I would call him. I would actually call him a narcissistic. He was fairly close to being what I would call a workplace bully. And he was very, very ambitious, and he wanted to lead this catalysis effort, and he was a manager of a sister program. And when my boss, who originally hired me, who I liked very much, he went off to Washington, DC, for an assignment, and then they retired him, anyway, all this sort of stuff. But when he went off to Washington, DC, he recommended that I be the acting manager. And this was a real . . . and he did it because he knew this manager was a difficult person and all. He didn't want to leave this guy in charge of anything. So he left it for me, but in retrospect, I can see that he, kind of, set me up for a difficult situation, but he was trying to do it for the good of everybody, you know. He was **<T: 25 min>** doing it for a very good reason, and it wasn't . . . he thought I could handle it. But that became a very corrosive influence, and over time, because he was a manager and I wasn't, I mean, there were times when I had to appeal to my boss's boss. In fact, at one point I said to him, I wrote to my boss's boss and said, "You either move me out from underneath this guy and all the catalysis people, or I'm quitting all this development stuff and just going back to research." And since he knew that I was the one bringing in the money, that's what he did. He moved me to another—me and everybody else—to another group.

**DOMUSH:** Wow.

**JACKSON:** But this guy still, you know, he felt threatened. He would push me in. He was a liar. You know, he would go out and promise—work with companies—he would promise things we couldn't do. I didn't really like being associated with him, and eventually I had to concede defeat. You know, I just was not going to be able to continue to do catalysis with this guy undermining me, and that was hard. I had to leave catalysis. I mean, I tried to talk to people in upper management about this guy. I thought he was unethical. People didn't listen to me. Sandia paid a huge price that they didn't listen to me because later there were a lot of really negative things happened. Luckily, I had no association with him during that time, and he sued Sandia, and, I mean, it was just a disaster for Sandia. Anyway, I conceded defeat. And it was a hard thing to admit, but it was kind of one of these things where eventually, you know, just life is too short. Nobody was going to defend me against this guy. He was going to be a bully. He was going to do whatever he could to undermine me. I just had to . . . so I had to leave catalysis. I had to leave catalysis, and I knew that leaving that group would eventually cause it to fall apart. And it did because nobody was bringing in the money. And it was getting harder and harder to bring in money anyway because energy was being supported less and less. I didn't see a future. At this point in time, I had traveled to Europe and visited the Netherlands. The Netherlands had made large investments in catalysis research. I mean, that was the endgame. When I went to the Netherlands, and I visited a number of universities there, and I saw what they were doing in catalysis, I said, "I quit." [laughter] We're never going to be that way at Sandia. You know, I

personally am being undermined by this person that I don't trust, nobody trusts. So I just said, "Okay, I quit."

And I then got a job in management to manage this other research group. It was . . . what did they call it? Chemical and Biological [Sensing], Imaging and Analysis, I can't remember exactly what it was, but it was something like that. Basically, it was a group of chemists who did chemometrics. They did spectroscopy and chemometrics. They analyzed imaging and this sort of thing. [. . .] I just completely broke with the past and just went into this. It was kind of the . . . it was a completely different experience. I probably wasn't very good at it because it wasn't . . . you know, before I'd been managing, I'd been building this program, and now I was just, sort of, in a management role and couldn't really . . . you know, I wasn't as involved in raising money. It wasn't as entrepreneurial, which is what it turns out that I really like entrepreneurial work, building things. But I learned a lot about how Sandia works and Sandia management. And 9/11 happened, and my group was involved in the analysis of the anthrax, and that was very interesting. At this point in time, I was on the Board of Chemical Science and Technology of the National Academies, and that was very interesting. I learned a lot in that. I learned a lot about chemometrics. I learned a lot about what could be done in visualization and imaging and all that sort of stuff, so it was interesting. It was a very interesting experience. It was **<T: 30 min>** a good learning experience. I learned a lot. It was not the most thrilling thing I had ever done, but it was a good thing.

And then I don't know. I just was . . . . I applied for another job after three years. I had served my time, and I wanted to go back more into the energy world. And I didn't get it. I would say that that . . . . I really felt that the person who was hired for that position was hired because he was a male. And I brought it up with HR. In retrospect, I mean, I really liked the person that was hired personally. I mean, I still like him. I work with him, and I think he's a wonderful person, but there was no doubt in my mind that I was clearly more qualified for this position than he was. And it was also clear to me things were changing. You know, George [W.] Bush was president. There was less of an interest in affirmative action. The education programs had long since died at Sandia because nobody cared about underrepresented minorities or science anymore under this administration, that was for sure. Then energy was completely . . . there was very little support for that. You know, I could see Sandia going backwards in the way that it treated minorities and women, and I wanted to leave. I really wanted to leave, but my husband didn't want to leave. I interviewed for jobs outside of Sandia at that time, but I mean, when you're . . . there's no other jobs for PhD chemical engineers in Albuquerque. I mean, I would have to leave Albuquerque. And Jim didn't want to leave. That's okay.

I looked around Sandia. I thought, "You know, hey, I wanted to come here for a reason, because I love this policy stuff. So if I'm not going to get into energy, there's not that much energy research, I got closed out of the only job that I thought I was really highly qualified for, promotion-wise, and where would I like to go? You know, Jim wants to stay here." I looked around, looked around. And there was this area of nonproliferation where they do cooperative, what they call cooperative research—cooperative collaboration in nonproliferation. What that means in reality is that there's no classified work. They worked cooperatively with other countries to try to lower the risk of nonproliferation, and they do it by collaborating in science,

in the US helping scientists. Certainly, there was a lot of work at that time in this area working with Russian weapon scientists and getting them involved in other things. And I looked around I thought, "Well, that has my name on it. I thought, that would be fabulous because then I could get back to that really policy side." I mean, it was just like, that's it. But, of course, I have no real background in nonproliferation or that area. I did what I had been taught over the years about careers and development, and I made an appointment with the director of that program.

I just talked to her about it and told her what my interest and my background was and [said] I'd be interested in coming in that area in some time. And she got that a lot because it's a very popular place to work, as you can imagine. We had an hour discussion, and then I told her, "Well, think about me," and blah, blah, blah. It was about six months later, two jobs open up. One was a deputy for this woman, and the other was in the Government Relations Department. I interviewed for both, and I made a finalist in both. I thought about it, and I thought, "Well, it's probably better for me to make the decision what I want, rather than wait to find out which one I get because if I want one of them, I should go after it. I should tell them this is the one I want." I thought about it. And I thought, "Well, I've been in Government Relations before. I want to go into a new area." I remember calling Dori [Doris E. Ellis] and telling her, "Look. I told you I had another job, but this is the one I want, and this is why I want it. And this is why I think I'd be good for it," and blah, blah, blah. And I got it. I became her deputy. And I spent the next three years **<T: 35 min>** learning about nonproliferation. It was completely different than anything I'd ever done before, and it was really great. And Dori was an excellent person to learn from, and I learned a lot about Sandia, and I learned a lot about nonproliferation, and it was a wonderful opportunity. I didn't travel all during that time. I was her deputy, so my job was to stay home and keep the home fires burning, and this was a good thing, so it was a really great experience. I learned a lot, and that was great. It was a great job. I loved it.

During that time, [in] the catalysis program, sure enough, everybody except my husband left it, and it fell apart for lack of money. I think in some ways, my husband resented me for leaving, and leaving him in the lurch like that. He has done very well for himself, so I don't think he feels that way now. He does really cool things these days in energy. He does some of the most exciting things in energy that I can . . . research that I know in the whole United States. But I did completely leave that field, and it was because, you know, I didn't see any opportunities. It was getting harder to be a woman in Sandia, and so it was just a good place—Dori, a woman boss. I mean, in fact, that was quite an experience. So I worked closely with a group [. . .] I worked for Dori. She was the director. I was her deputy. The center had about—I don't know—seventy, eighty people. That was the center, and she ran the center. I worked with a group of managers at the top of the center who ran the center, and they were primarily women. In fact, there was only one man in this group of three to six people that I worked with. It was the first time in my life I had worked with more women than men. It was interesting, because believe me, it is a completely different culture working with women than it is with men. Not that I wouldn't . . . not that I didn't like it. It was just an adjustment. It was a culture shock for me. I remember calling my dad and talking about how that was such a . . . and he said, "Yeah, it's going to be a completely different culture, isn't it?" Because he used to be the token man of all the women's groups during women's movement, so he could relate. It was completely different, and I loved it and I would prefer it. But it was different, and I had to learn. That was an

interesting aspect of that. As a consequence, as Sandia became less and less friendly towards women, I didn't experience much of it right there because I was surrounded by women, and they were in charge, and this sort of thing. I didn't really notice it.

**DOMUSH:** Now, why do you think there were so many women, kind of, centered in this one area in Sandia? How do you think that happened?

**JACKSON:** Well, I think there were two things that made it happen. One of them was that the director was a woman. So women liked working in there. But also it was because it was more political. I mean, not political, not . . . . I mean, it was more policy. It was more policy, so it was more people-oriented, and it tended to attract women in that area. Also, the great thing about Dori Ellis, my boss, the thing she is so, was so—still is—so fantastic at is in—and I think women tend to be good at this—is setting up the environment so the people could do their job well. She actually had a group of non-technical women in the center leadership who enabled us to do our jobs. She helped make international travel easier for the groups that worked in there. She had more administrative people involved with the center so that the technical people could do the technical work, and the administrative . . . . I mean, and the whole rest of the laboratory was going towards making technical people pick up the administrative stuff whereas she was developing this center that was . . . every day I still say thank you, Dori, for setting that up. Because there's so many things that make my life easier, because I'm still in that center to this day that she set up, and that she did.

But then one day—so her boss is the vice president, so that's vice president, director, and then I was her deputy—one **<T: 40 min>** day . . . and I saw this coming. One day her vice president reorganized his division and basically took her out of a line management role and made her what they call program director, which meant she didn't run the line anymore, which of course was ridiculous, because as I just told you, she was perfect at—and still is—at making the line an effective place for people to work. She had been working in that center for seven years. She had built it to what it was, and basically, he took that baby away from her. It was a crushing experience, not only watching what he did to her, but what it meant for me, because he forced her into this side box position and assigned his own deputy to her, a man who is at a higher level than I was. The line director then assigned another person to be that line manager's deputy. Basically, I was organized out of a job. And my director, Dori—and God bless her, I don't blame her for this—was so distracted by her loss that she was not very supportive of me at all. And I didn't hold that against her. I mean, she was devastated. But she's a tough woman, and, you know, she didn't really want it to be, sort of, seen on the outside. But it was obvious to people close to her that . . . . I mean, he [was] a moron—we won't use his name. But I was left, and not only was I left without anything, but my job responsibilities were split between two men at a higher level than I was. So there I was. I was so angry at what Sandia did to me and what it did to my boss. And at this point in time, I mean, Sandia's record on women had just fallen through the floor. There was a period of time, a [. . .] five-year period at that point in time that they had not promoted any woman to director, technical director. And during that time period, they had promoted, like, almost twenty directors—males to directors.

You know, here I was, out of this job with nothing to do, just thrown out on my own, and nobody helped me. Nobody told me. I mean, even my director was not good at telling me. It was just very poorly handled. It was clear to me that I'd been . . . that I had a suit, I had a lawsuit. And I remember I had one staff member in that deputy position. She was my deputy. And we hold this meeting together. I called this meeting for everybody to come together, so I could make sure that everything I used to do was well covered by everybody else. My deputy, my staff member knew that I was holding this meeting to document that every one of my responsibilities was handled, was passed off to somebody who was higher than I was, and 95 percent of that to men, who are appointed in those positions to take my place really. She's like, the whole time—and I'm documenting for legal purposes that I was going to go to a lawyer. And they're of course, saying, "Okay. Well then, and so-and-so will do this. This guy will do this. And this guy will do that, and then this guy." My staff member is sitting there going, "Oh my. Don't these people know what they're doing?" You know, we went through the whole meeting, and we all wrote it down, and we did it. And she was there, and I got papers and I walked out. And she was like, "Wow, those people are really stupid."

And I called a lawyer. We talked and I felt very much like I had a case. But you know what? I didn't want to live that way. I didn't want to live with . . . this is a good lawyer. He, kind of, told me what I would be in for. And Sandia at about that time—right about that time—Sandia had just settled a wrongful termination suit for a white male.[7] And this is **<T: 45 min>** how bad Sandia's reputation was at that time in the community. The jury had awarded this person double what he had asked for in awards because they felt that Sandia was so arrogant and so misdirected in the way they had handled this termination that they felt the guy deserved double what he had asked for.

**DOMUSH:** Wow.

**JACKSON:** This was the legal atmosphere into which I went into this situation. So there was no doubt in my mind I was going to win this suit. But it was going to be a painful, many-year process of which I would be ostracized, even if there is a no-retaliation rule and all this sort of stuff. I decided I didn't want it that way, but you know what? I didn't want to be at Sandia anymore. I hated it. I was very, very angry. I did not like what they did to me. My husband once again didn't want to leave Sandia, but you know what, at that point, I really didn't give a shit. I went out, and I interviewed other places. I looked for other jobs. I was really angry.

In the meantime, I did . . . my new boss was like, "Well, go out and ask people, ask the other managers if there's something you can do." It was just, whatever. I did do that because I did have to take care of myself at Sandia while I was looking for another job, and I was really angry and all this sort of stuff. One of the other managers was this guy who did a biosecurity

[7] See Scott J. Shackelford, et. al., "Rethinking Active Defense: A Comparative Analysis of Proactive Cybersecurity Policymaking," *University of Pennsylvania Journal of International Law* 41, no. 2 (2019): 377-427. Accessed at https://scholarship.law.upenn.edu/jil/vol41/iss2/3/ on 3 June 2022.

program, really cool stuff, great guy. Still to this day, I really think he's one of the better people I've ever worked with at Sandia. One of the best people I've ever worked with. His program was primarily funded through the [US] State Department. He said, "Oh, you're looking for something?" He goes, "State just told me that they're thinking about starting a chemical side to this security program. Go talk to them about it. You know, this would be great. I've been trying to set them up with something, but nothing has really worked," and da, da, da. You know, go. So I said, okay. You know, so I went. And so while I'm angry and I'm looking for outside jobs, I am starting this relationship with the Department of State to maybe . . .

**DOMUSH:** Within Sandia.

**JACKSON:** Within Sandia, yes, but the State as a customer. Normally, the Department of Energy is our primary [customer], you know, because they run us.[8] But this is what they call a Work For Others or WFO, and I was working with State. So I went to State, and I started this thing about they wanted to start this chemical security engagement program. And the woman who was starting it at State was just a great mover and shaker. Not only was she a mover and shaker, but she was a person who was very affirming. Every time I would do something, I would get instant feedback, and it would be effusively positive. It was just . . . which, as you can imagine at that point, was exactly what I needed. It was just, like, oh my God. Beth [Elizabeth E.] Cameron became my lifeline. She just reaffirmed, gave me some of that self-confidence back on myself that I had lost so drastically. I was starting, and she had some really interesting ideas. She was starting to really do some . . . you know, had some really great ideas. I was a good person . . . . I was a good fit for this sort of thing, because—and I will get to that in a minute—because of what the job was, and I will get to that in just a second.

But I'll go back to Sandia. Suddenly I realized I was actually interviewing for jobs outside of Sandia. I was really serious. My husband—God bless him—I mean, he was torn. You know, he knew how angry I was, but he really did want to stay there. Our kids were in middle school. It was like, I realized that I was really about to leave Sandia and that I had to either do something about Sandia or I was going to leave and that maybe that really wasn't the right thing to do for my family. So what I did was something I should have done long before that, and that was to stand up for myself. I started basically telling everybody I knew and emailing every vice president I knew and tell them what happened to me and how it was wrong and how **<T: 50 min>** I was treated and do something about it. And they were like, oh. They saw lawsuit flying across their eyes too, you know. I mean, they weren't stupid. So my vice president got wind of it, and he was like . . . the senior vice president over him was saying, "Deal with this. You take care of this." And I got myself in a situation where nobody was going to touch me, you know. They were going to allow me time to find that place in Sandia. And everybody heard about it, and it was kind of like . . . and now I started sending emails out to everybody I knew, every time they promoted another man up to manager, [I would say,] "Well, you know, that makes the

[8] Sandia National Laboratories is technically government-owned, but contractor-operated (GOCO). At the time of this interview, Sandia's management was contracted to Lockheed Martin.

twenty-first man that has been promoted to technical director since the last one was promoted. And now, twenty-two, "that made the twenty-second." [. . .]

I hadn't realized that it was hard for me to stand up for myself until that point. And that was the hardest and most painful lesson I learned was I had to stand up for myself. I mean, I had fought for people who had been bullied in the past by this old bully. I had fought for people who had been mistreated at Sandia. I was the person people tended to come to when they had bad . . . when Sandia mistreated them because I would fight for them. I didn't care what anybody else thought. But having to learn to do that for myself was a completely and totally different experience. And that was, in some ways, professionally, that's the hardest thing I've ever had to learn to do was to stand up for myself like that. But I think I was able to do it because I realized that if I didn't do it, I'd really let my family down because I'm going to leave, and they really wanted to stay. I had to do it. So that's what I did. I got myself to be completely untouchable, which gave me time in order to work with the State Department or to find another job or something. I started working with the State Department, and like I said, I'll go into that in a minute. But even though that looked like that was a really promising thing, I was still really angry. I was angry about the way I was treated. I was angry about the way they treated my boss. I mean, even in retrospect, what they did to my boss was far worse than what they did to me. And I was angry at the way women were treated.

Lo and behold, somebody asked me to be head of the Sandia Women's Action Network [SWAN]. That was an organization of women at Sandia. They usually had two women who headed it up—one who was a technical woman, one who was a non-technical woman. And I thought, well. And the organization had, sort of, fallen off in activity in the year or so before. I wrote one of the few remaining women vice presidents, so the only woman technical vice president left in the organization at that time, and said, "Joan [B. Woodard], somebody has asked me to be head of SWAN." And I said, "I will be head of SWAN only if you agree to work with SWAN and help become an advocate for women in Sandia because we're not doing well." You know, I have no idea what I really expected her to say. But I was so angry at that point in time, I didn't really think a lot about the results of my actions. But much to my amazement, she wrote back and said, "Absolutely. And you are right, women need help, and I will be there." And sure enough, she did. She and the other, the non . . . the legal head who was also a vice president, she was also the head lawyer. The technical vice president and a lawyer vice president helped a lot with SWAN and really got it going again and helped support my leadership.

You know, I think we made a difference. I think that part of it was also that there was a new vice president who came in from Lockheed Martin [Corporation], who runs us. He recognized that things were bad. And Lockheed Martin, whatever you may think of Lockheed Martin or whatever I may think of Lockheed Martin, they see diversity as a business imperative. The government is the most diverse organization in this country, and if they're going to sell to the government, they have to reflect that. They take it very seriously, and they are very good at it. I think that this HR VP who came **<T: 55 min>** in recognized that there was a problem. Lockheed Martin saw that there was a problem for many reasons. It was good timing to be having that and that SWAN effort, which I did for a year-and-a-half or so allowed me a way to get rid of my anger because it was placed, I was placed in a way that could make things happen.

I reorganized SWAN, and we got some things going. We very much made it obvious that there was a problem, and things started happening. I mean, women were appointed directors. Women were appointed . . . . I now have another . . . my old VP left. He retired and he was replaced by a woman who is sharp and smart and savvy. So things happened. I like to think that I had a large part to do with that, at least to making the noise that brought the attention to it.

**DOMUSH:** Well, and that there was a group, that SWAN existed, even if had, kind, of dropped off in the recent years, there was an actual outlet, and there were other people.

**JACKSON:** Right. And apparently, I was by far not the only woman who felt that way at Sandia. I was able to capitalize on a lot of that frustration and anger. I think things moved on, and, you know, I felt really good. I had to give that up when I was elected to ACS because it was one too many things, right? So I had to give that up. Anyway, so I gave that up at that time. But by that time, it was going good and still going good. It's doing well, and I got over my anger, and all that sort of stuff. But in the meantime, so . . . you know, can we stop for a minute?

**DOMUSH:** Sure. I'll pause it.

**JACKSON:** Sorry.

[END OF AUDIO, FILE 1.2]

**DOMUSH:** Okay. So we were just talking about how you were able to, kind of, funnel your anger basically for the betterment of Sandia, and yourself, really, through SWAN, and things started to change a little bit. Lockheed Martin came in, and, as you said, realized that things needed to change.[9] Other people were able to use SWAN in kind of this reinvigorated sense, and change occurred. But while all that was going on, your position, your job, inside Sandia was also changing.

**JACKSON:** Right. [. . .] It's like I said, I went to the State Department. The State Department was funding a program at Sandia in the biosecurity area. In fact, Sandia is one of the leaders in biosecurity in the United States. We were actually doing biosecurity before 9/11. When 9/11 happened, like everybody after the anthrax thing, everybody came to us, "How do we make ourselves secure?" So we were very much leaders in that area. And although that was funded in

[9] To be clear, Sandia Corporation (the corporation that managed the labs) had been a wholly owned subsidiary of Martin Marietta (later Lockheed Martin) since 1993. It was just at this point in time that they started taking greater note of this situation, moved some of their people into positions at the lab, and began changing things.

a variety of places, it was eventually largely funded by at that point in time the Department of State and the DHS [US Department of Homeland Security]. But anyway, so in the International Security and Nonproliferation/Cooperative Threat Reduction part of the State Department, they decided maybe they wanted to start up a little chemistry security program. In fact, they called it a Chemical Security Engagement Program that they wanted to be started. Engagement in policy terms means something specific. It means they wanted to engage scientists. So it's a scientist-to-scientist relationship-building program.

You know, I had been away from the political science side of the world for a long time. I forgot that they valued relationships, and they actually talk about relationships and things like this. It was very delightful to get back into that. Again, you have to remember, I told you I worked for the professional association of the Foreign Service Office of the State Department, so I knew how the State Department worked. I had been in the State Department. I was very familiar with how State worked because of that past experience. I came into State, and I collaborated with Beth. And Beth and I built this program from scratch. I started—now this was in 2007—with—I don't know—maybe a couple hundred thousand, hundred-fifty or something thousand dollars that year to—and this is fiscal year—to 2011, I'm going to have almost seven million [dollars].

**DOMUSH:** Wow.

**JACKSON:** Yeah. It grew a lot, and I got to be on the ground floor with Beth, who is a wonderful person to team with, and we started this program. Beth has a PhD in microbiology, so she was a scientist, but also an employee of the State Department at that time. She has moved on now. We built this program. And the gist of the program is to try to encourage developing countries where there is a terrorist threat to go into those countries and make relationships with chemical scientists—both in academia and in industry—to help them make their work with chemicals more safe and more secure so to try to prevent in a long-term, general sense the misuse of chemicals—theft or misuse—by malevolent motivating people and terrorists. It was easiest to break into academia first, and that is what we did, although we've been trying all along to break into industry. Now we've gotten a much better foothold, but that was much harder to get into. So the original work was developed a lot working with university professors, originally in Southeast Asia. That's where we started. Then we moved in the Middle East. Now we're going into Africa. We teach safety and security to these professors inside of developing countries and **<T: 05 min>** develop these programs.

**DOMUSH:** I mean, from my own chemistry background, I can imagine what the safety training is like. But what types of security measures . . . are they things that I'm probably familiar with that I don't even think about?

**JACKSON:** Probably. Or that you would be as a graduate student nowadays because DHS is enforcing more and more security sort of rules in the US. There's a lot of overlap between safety and security. First of all, just keeping an inventory of your chemicals; if you have an inventory of your chemicals, that helps you keep them safer and store them safer. You know, the whole management of chemicals, sort of, thing has to do with safety, as well as security. You know if something's stolen, you know if something's missing, you know if you have something that's dangerous or attractive, or any of those sort of things. So the whole management, how you manage your chemicals can be both a safety and a security thing. There are other things, let's see. Security-wise, a lot of it is just an awareness that certain chemicals might be attractive to people that want to build a bomb or use a poison or that is vulnerable if you blow it up. You know, if you store a bunch of flammable chemicals somewhere you don't want somebody to blow it up, you don't want to have access to it. Keep your chemicals under lock and key. I mean, people do that in the US too. They may be afraid of different things. They're afraid of people who come who may want to make methamphetamine, you know, those sorts of things. And you have different sorts of concerns in the US than you might in the southern Philippines in the Mindanao region where there's a lot of terrorism going on there. They don't want people to come in and steal their chemicals and use them for bad. I mean, chemists don't want their chemicals misused. [. . .] It's not like you have to go out and convince chemists of this. Also, the same key practices in this part of the world, especially in developing countries, are not very good at all. There's a huge . . . . I mean, the one thing that we learned is that there's a huge problem in disposal of chemicals and disposal of hazardous waste and hazardous chemicals, and that's a bad thing too. That can be misused if there are a lot of dangerous chemicals [that] are stored in one area. First of all, it's . . . you could throw fire into it and kill lots of people and have a big problem. But also it can be stolen and used as poison or used as flammable, explosive materials, and all sorts of things that can go on.

So I started by myself. I mean, I started this first year in 2007. Our first kickoff was in Malaysia at the—I'm trying to remember—the Twelfth Federation of Asian Chemical Societies meeting [Congress]. And the Federation of Asian Chemical Societies is a regional organization of national chemical societies in Asia. They were having a congress there, and we had our first workshop following that congress, and that was in August of 2007. It was in Kuala Lumpur, Malaysia. We, kind of, started with Malaysia for a number of reasons, just because Malaysia . . . we have a good relationship with Malaysia. There's a lot of science. They live in a tough neighborhood, Malaysia does. You know, they have some sensitivities to the neighborhood, meaning Indonesia and southern Thailand. There's a lot of problems in northern Malaysia. Anyway, so we started in Malaysia. My first trip overseas for this program was taken in May of 2007 to go to Kuala Lumpur. I went to Washington right before Beth and I were going to go to Kuala Lumpur. The first thing Beth said to me was, "I'm so sorry, Nancy, but I can't go with you to Malaysia. You have to go by yourself." [laughter] Which, you know, I'm always in for an adventure, but I was kind of like, oh. So I flew off to Malaysia by myself having never been there before. Luckily, it was being held at the same time, I was going at the same time that a biosecurity meeting was being held in Kuala Lumpur. My colleague, my biosecurity colleague, who got me into this mess to begin with, was there. Although we weren't staying at the same

hotel—we were doing different things—at least [Ren] [Reynolds M. Salerno] was there, you know, so I felt like I had a backup.[10]

**DOMUSH:** You knew someone in <**T: 10 min**> Malaysia.

**JACKSON:** Right. I knew somebody, I was okay. And I was fine dealing with the chemists in Malaysia, meeting with the chemists, because of course, you know, that was easy. The government side was a bit of a . . . . I felt like an impostor. You know, I'd go in and I'd talk, and I thought, "I'm completely faking this whole thing." In fact, it was kind of funny, because at the end—and the embassy was very supportive of me during that trip, which was great since Beth wasn't there—but at the end, the embassy said, "Well, and everybody will come to the embassy for a briefing at the end." I'm like, okay. [The embassy said,] "We'll pick you up, don't worry." I'm like, okay. Anyway, so I had this whole meeting in Malaysia, and all this sort of stuff with government and chemists and everything like that. At the end, we went to the embassy for the briefing. We went up into this secure little room, and they all said okay. A group of us, and they turned to me, and suddenly at that point I realized I was briefing them. I thought they were going to brief me. [laughter] This is how naïve I was or stupid. I'm like, oh, so I had to quickly figure out how I was going to in two seconds tell them what happened in the meetings and all of that fun and everything. It was kind of funny. So that's how green I was.

But I got to meet two of my favorite people I've gotten to meet in the past several years, the chemists. One was [Datuk] Dr. Soon [Ting-Kueh], who is head of the Institute of Malaysian Chemistry [Institut Kimia Malaysia], the Chemical Malaysian Society, who at that time was president or became president in August of the Federation of Asian Chemical Societies. He was president-elect at that time, and the general secretary, a woman named [Datin] Zuriati [Zakaria], both of whom are PhD chemists. She was at one of the best schools in Malaysia there, a chemistry professor there. And they were so warm and wonderful to me and supportive of me, and they helped . . . not only did I meet them together at the Institute of Malaysian Chemistry, but then they came with me to some of the government meetings. And they were just . . . . I mean, they just made me feel warm and welcome, and to this day, they bring a smile to my face when I think of—and Zuriati is, I consider her a friend of mine now. We're on Facebook together and all that. And they were just great.

I spent the rest of that year [. . .] I did it by myself. I mean, I did everything from the secretarial work from, you know, a thousand emails inviting all these people and helping organize all this stuff to preparing talks on different things and identifying experts to come to the talk. And the whole goal of the program was to engage with chemists, engage with scientists around the world and to also work through professional societies to do it. Of course, my experience with ACS was so important. I mean, I'd already been on the Board of Directors at the American Chemical Society at that time, so that was a great thing. [phone rings] Sorry.

[10] Science History Institute staff were unable to verify with the interviewee if this name is correct.

**DOMUSH:** That's okay. [. . .] Before the phone rang, you were just telling us about—I am not going to attempt to say your Malaysian friend's name. [laughter]

**JACKSON:** Zuriati and Dr. Soon. Dr. Soon's easy to say. But Zuriati Zakaria. Yeah. So anyway, that was the beginning of my great adventure with the Chemical Engagement Security Program. I did all this work, and not only did I do this work, but I had to support myself. I, sort of, rented myself out to other parts of the Nonproliferation Program at that time. What I agreed to do was take trips for people because there was so much international travel. But if I would take trips and give talks for other people in the Nonproliferation group, and, you know, I was familiar with the whole center and everything that everybody did, so I was a good person to fill in, but it would pay for my time during those weeks that I would travel. During that time, not only was I doing this, but I would, like one week I went to Kazakhstan and gave a talk there on nonproliferation stuff and border security. Then one time I went to Germany and gave a talk to a group of Indian—no, Pakistanis **<T: 15 min>** and Afghanis—on border security. [laughter]

**DOMUSH:** Your passport must have started to look very interesting.

**JACKSON:** It did. So I would just fill in for these people and go to these places. It was a very interesting time because I didn't have enough money to cover all my salary, even though I knew I was bulletproof at that point in time. Nobody was going to fire me. But I would do these things and all. It was an adventure, so I'd do this. I was building the chemistry security engagement. We were building to this Kuala Lumpur meeting in August of 2007. And that's what I was doing . . . oh, and it was horrible, because I had to do all this detail work and setting up hotels. You know, and I hate detail work. I am not . . . . God did not make me to do details. [. . .] But I was doing all this stuff, and I was writing and organizing, bringing everybody together for this workshop after the Asian Chemical Congress. And it happened, and off we went. We had it. We had the workshop, and it kicked off well and that was the beginning of the program. And that's probably a good place to end, right now.

**DOMUSH:** Yeah, I think so. I think when we come back after lunch that will be a great place to start.

**JACKSON:** Okay.

[END OF AUDIO, FILE 1.3]

**DOMUSH:** Back after a lunch break. And just before we broke for lunch, we were talking about kind of the very beginnings of the . . . . I believe the name is Chemical Security Engagement.

**JACKSON:** Program, right.

**DOMUSH:** Program. And about how it was basically you doing a lot of work to, kind of, get ready . . .

**JACKSON:** From the secretarial to . . .

**DOMUSH:** Right. Doing everything to get ready for the program that was going to be in Malaysia. And since that time, the program has expanded and grown. And I was hoping that we could talk a little bit about the ways it's grown, if it has grown in the ways that you imagined and hoped that it would, or if it's taken on new twists and turns and things that you maybe didn't foresee.

**JACKSON:** Well, I will say that I never imagined the program to grow as big as it has—never, not once. As I mentioned in the beginning, it was much easier for us to break into the academic world for safety and security training, mainly because professors all over the world are very concerned about their students' safety, and a lot of professors in the countries that I go to are educated in western universities, maybe in Australia, but maybe in Europe or the US, so they were used to a certain . . . when they were trained, they had a certain level of safety expectation in the way that they operated in graduate school, but they didn't have it back in their home university. I think that bothers a lot of them, and they don't have support from their management or administration for safety and security. University professors were very open to us coming in. And it helps for them, you know, in places like the Philippines where we go, for them to say, "Look. A US national lab where the chemists are very involved in American Chemical Society is coming and teaching us this standard of safety. You know, if we want to be a good university that can go to their deans and say, 'We want to be a good university,' they're teaching us, or they are setting, sort of, this bar of what the minimum amount of safety and security you should do. And so we need your support, because that'll make us a better university."

So we help give these universities leverage with their administration to be able to fund because safety is not always free, you know, it costs money. There has to be some investment. Not only do we train about good ways to do it, not only does my team now, or well, it was just the two of us for a while. I did hire a PhD chemist who helped me fairly early on. She came and helped me with all this, and we would try to figure out ways that they could be safer and more secure that were not traditional or something you would never do in the US because we have

regulations. We have, in many ways, particularly at a lab, or an industrial lab in the US, you have regulation-based safety. But when you go to a country where there are no regulations, or if there are regulations, absolutely nobody enforces it, then you need to do risk-based safety, is what they call it. You behave in such a way that minimizes the risk you take in working with chemicals you use. That allows you to be really creative in solving these safety problems or security problems that you wouldn't be able to do in the US because in the US you have to follow . . . so it's interesting because—and then you have to think about each country you go to. For example, in Indonesia a lot of the labs that we went to had a lot of flammable materials, because they work with . . . as you can imagine, there's a lot of natural products research in Indonesia because they have more natural products than everybody. It's really kind of exciting. But that means they end up having a lot of organic solvents and all these sorts of things. But they don't have any flammable gas cabinets. And flammable gas cabinets, if you order one, I mean, they're thousands of dollars. They're very expensive. But we're trying to help them to design a wooden flammable gas cabinet because really the whole design of a flammable gas cabinet is to slow down a flammable process. If you have a wood that is <**T: 05 min**> a heavy, thick, dense wood, you can build a good wood-based cabinet that will slow down that whole process. Since they have beautiful wood in Indonesia, and labor is cheap, you know, so this is something that we've tried to work on, in developing those sorts of things for them and developing these flame-resistant cabinets, so that they can build themselves cheaply.

Those are the kinds of things we do. Obviously, we can't suggest that in a place like Jordan where there are no trees, right? So every place has its own . . . you know you have to think about what their issues are. In a place like Jordan for example, Jordan is like the little engine that could. It's a little country that could. I mean, it's one of the few countries in the Middle East that has no oil reserves and never had oil reserves. To a certain extent, to me they're the measure of what good leadership means because Jordan may not have had oil, but they've had good leadership. Anyway, they're a very impressive country. They try very hard, and the Jordanians are very proud of their country. They work very hard to improve it. But they're very poor, but they still work very hard. It's a very impressive place. You know, people care about stuff. Anyway. But on the other hand, talk about living in a bad neighborhood, you know, they have a lot of terrorist issues in their neighborhood, and they're very security conscious. They do not want terrorism to enter their country. The average, ordinary person does not. They are very responsive to our message about security with chemicals. They don't want anybody messing with them. They are good about locking them up. In fact, they are very, very conscious about their security because it's just something that comes to them because they know if they aren't, then they're going to be in trouble.

**DOMUSH:** Right. So now was that something that you found they were already security conscious before . . . ?

**JACKSON:** Yes.

**DOMUSH:** You and your team approached them?

**JACKSON:** And in fact, I used them as an example for other countries as to if you really are serious about security, then you've got to think about it the way Jordanians do. And they limit the number of keys to the storerooms that they allow. They lock their storerooms up. They're very careful about who they allow access to large quantities or their larger quantities of chemicals. I mean, they may not be as careful about what they put in a teaching lab or something like that for the teaching lab. But storing chemicals and this sort of thing, you have to be careful.

What those stories imply is that every country and every region is different. They have different chemical safety, and they have different security needs. That was probably the first lesson I learned at that workshop in Kuala Lumpur where there were a number of speakers from different countries. And what we proceeded to do then, I then . . . it was not long after that that I had my first staff member to work with me on this. We started traveling to countries and doing, sort of, initial safety one-day workshop training courses or something like this. And really, we were going out there and saying, "Well, this is the bar. This is where you want to be as far as safety and security goes," and talked about ventilation and all these really thrilling subjects. But anyway, we were also there to learn. You know, we had to learn what are your issues? What are your big problems? So in many ways, those first few years [were] a real learning experience for us, I mean, about what is out there, what isn't out there, what we need, what they need for safety and security, what their real issues are, what their sensitivities are, all that sort of stuff. And every place is different. We started a pattern that we have continued where we will go to a new country or work . . . there are still countries we can't go to, like Pakistan, which is too dangerous. We bring Pakistanis to a third country, like in . . .

**DOMUSH:** Like when you **<T: 10 min>** said . . .

**JACKSON:** Bangkok, [Thailand]. But I will call that, you know, starting in a new country. We do a short one-day maybe workshop. Often that will be combined with a visit like I'm doing to Morocco, or it will be I will go to a chemical conference in the region and get to know chemists in that area, or all of those things. And we will slowly but surely try to learn to introduce our program to the region or to the country as well as learn what their issues are. Once we've done that, then we tend to go in more full force. We have a week-long training course called Chemicals Safety and Security Officer Trainings to learn how to become a safety officer in your school as a chemist professor. We do this training—a week-long training—and we'll emphasize different aspects of it depending on which country we're going to. So that's been the nature of the way it's gone ever since. You know, you slowly move into a country, learn about what they want and need or what their weak spots are and this sort of thing. Then we'll do long training and do [certification] training. Those people then will go out and train their own people, other professors and students who really encourage that. It's a train-the-trainer course that we're trying to tell. We try to keep track of what training then that they do and help support . . .

**DOMUSH:** So there is follow-up.

**JACKSON:** Yeah, they follow up. We follow up. We try to encourage them to train others. We'll often support that training of others by . . . for example, in the Philippines—which reminds me, I need to answer them. They invited me to their national meeting in April. Hang on for a second. They know the president of the American Chemical Society, so they're trying to get me out there. But they are wooing me out there by telling me they're going to do chemical safety and security training as a workshop during or at the end of their national meeting. Of course, I want to go. And the State Department wants me to go to document they're doing this follow-up training. This is a cool thing for State to be able to say, "Look, you know, we train them, but they're doing it on their own now, right."

We do try to keep a relationship with all the countries and the schools, and the professors that we go to and that are continuing and that are the real movers and shakers. In the same manner, we have slowly but surely tried to get more involved in the industrial side of the chemical industry now. When it comes to multinational corporations, a company like Air Products [and Chemicals, Inc.] or Dow [Chemical Company] or BASF [SE], the way they behave as far as safety and security goes in the United States is the exact same way they're going to act at any of their affiliates all over the world. They're first-class science—I mean, first-class safety, first-class security. It's not the multinationals we're interested in. They're already doing all that. It's the medium and small companies. It's the companies that are suppliers of chemicals in this part of the world that are the dealers in chemicals. It's companies whose main product may not be chemicals, but they use a lot of chemicals in their processing, you know, some kind of microelectronics or any of those sorts of things. So those are the companies that we're trying to hook into. And that's a lot harder, and that's something we've been working really hard on the last couple of years because, you know, chemists in universities, they all belong to their professional society, and they're easy to get in touch with, and they're eager, and they're more free, and they're not as money-driven.

**DOMUSH:** Well, and they also, I think, would be looking for the collaborations wherever they can come from just as professors in the United States are always looking for collaborations.

**JACKSON:** Exactly. So that has been a harder thing to do. Often it requires more of a government-to-government relationship. The State Department helps us by introducing us to government regulators or government people in the country that work with industry. And that is our **<T: 15 min>** entrée to industry, or at least the industry in that country knows they have their government's support and encouragement to be looking into these sort of things. We're slowly but surely moving into the industrial side of things. We work with an industry association in the Philippines and the government there. The Indonesian industry has become very interested in working with us. And some of this . . . and I would say that since even in the short time period

I've been traveling to Indonesia, and I first went there in August of 2008. Indonesia, as well as many of the other countries in that region, have become really sick of terrorism. They're really sick of it. They have seen their friends die. They have seen their economic opportunities shrink as a result of terrorist attacks. They're just tired of it, so they're more interested and they recognize that to be first-class, even for an industry, they need to have certain sorts of safety standards, or they will never be taken seriously by the rest of the world. I mean, they have to behave in a certain way. They can't be sloppy. They have to follow certain rules. They have to label their chemicals in a globally recognized way, you know, all these sorts of things. They recognize . . .

**DOMUSH:** Right. There's a global . . .

**JACKSON:** Standard.

**DOMUSH:** Yes.

**JACKSON:** And they need to live up to that if they want to be a part of the global world. Between their tiring of terrorism and their recognition, particularly with the European Union, the development of the REACH [registration, evaluation, authorization and restriction of chemical products], their new regulations, as well as the Globally Harmonised System [for Classification and] Labeling [of] Chemicals that the UN [United Nations] has come up with and many of the countries have adopted, there is a real interest in safety and security because it is necessary to do business in the world these days. So we are slowly but surely . . . there's a lot more interest from the industries themselves. I think this last, the terrorist attack in Jakarta, [Indonesia], on some of the western hotels in August of 2009 really was the breaking point for Indonesia. I mean, after that people were just, "That's it. We want these people out of here." In fact, it's interesting because the main terrorist organization of which I can never pronounce—it goes by the initials JI [Jemaah Islamiah]—they denounced violence after that attack because there was such a public turn against them. Well, no, it wasn't after that; it was before the attack they denounced violence, and they decided to become more of a political party. Kind of what the Sinn Féin did . . .

**DOMUSH:** In Ireland.

**JACKSON:** In Ireland. And that, of course, was always a fringe even within their own organizations that didn't like that. It was that fringe that then caused the attack in August 2009, in Jakarta, and that really was the end for everybody. I mean, people got really mad about that and this sort of thing. The government has cracked down a lot more on these groups because there's a lot of public sentiment behind them doing that. It makes it easier. So that makes

industry very interested in us and being involved. We have an entrée to the Indonesian industry. We just met with them August, I think. I seem to keep going to Indonesia in August, but anyway.

Now I've had to expand my group. I have people in my group who . . . . I have a certified industrial hygienist who can help us with industry in that area. I also have people now who have worked in industry around the world, who can work with industries and help them in setting up their safety programs and more process safety. So we, sort of, expanded our expertise—not just the number of people—but our expertise and our working. We work with consultants. We hire consultants who can bring us specialty information we need as we go along. We've moved out of Southeast Asia. We've done a lot more in the Middle East. Now, we're moving more towards North Africa because I'll be going to Morocco in a week. So that's pretty much . . .

**DOMUSH:** Will you be moving **<T: 20 min>** eventually to South America?

**JACKSON:** No, probably not because there is to the US . . . . I don't know. I mean, we never know. But the US doesn't have as much concern or as much on the line with activities going on in South America. I mean, they aren't as threatened by the violence in South America. It isn't an anti-Western, it isn't anti-West, sort of, terrorism. I don't know. The State Department and I have an agreement: they don't tell me how to do the chemistry, and I don't tell them how to do their politics, and it has worked out well that way. They say, "You go here," I go, okay. And I say, "We're going to teach at this one," they go, okay. You know, "We're going to teach chemical safety this way," they go, okay. It's worked out very well that way. I do not necessarily advise them on where I think the biggest threats are with this thing. I mean, I could. The biosecurity group, my sister organization, does that sort of thing. They help to evaluate the threat. But I just haven't done that because they're not interested. So I'm not going to try to beat a dead horse, or I'm not going to . . . . I'm better off using my energies to bring good safety practices where the State wants me to bring them.

**DOMUSH:** Right and helping those organizations that are asking and eager for the help.

**JACKSON:** Right, exactly.

**DOMUSH:** Are you—and this may be speculation on your part, and if so, that's fine—do you know if there's any group that is doing something similar, that's, kind of, Europe-based and has been looking towards . . . . I'm thinking of what were the Eastern Bloc European countries, so many of which have become EU countries recently or are still applying for EU partnership or citizenship. But so many of those countries that have had such lax safety and security for so long . . .

**JACKSON:** Right. No. The closest thing that comes to that is the Organisation for the Prohibition of Chemical Weapons, OPCW. That's the organization that administers the Chemical Weapons Convention [CWC], which didn't really get called into [. . .] what do they call it? It wasn't ratified and come into force until the late 1990s. I mean, the CWC was . . . which seems amazing to me. I mean, the Geneva Convention after World War I—it was made in 1925—that many countries ratified said you will not use chemical weapons as a weapon, chemicals as a weapon. That was in a very general sense, but it wasn't a very enforceable sort of thing, and anyway, it wasn't until, I guess, until Iraq . . . well, anyway, it wasn't until later that the Chemical Weapons Treaty really became a big deal. It wasn't until the 1990s that the US ratified it and that it became a fairly universal treaty that was accepted around the world. It is a remarkably successful treaty. It is the first time a whole class of weapons has been banned by a treaty. It's a very successful model, and it's a very successful treaty.

The organization, OPCW, does a lot to help countries who have signed and ratified the treaty come into compliance because you're supposed to write laws where it's against the law to use certain chemicals. You have to report if you use certain precursor chemicals because there are legitimate reasons for using certain precursor chemicals, but they like to keep track. Part of the convention is to keep track of all those chemicals, and OPCW really tries to help the member countries do this sort of thing. The US helps OPCW try to do this. And this was a convention that was strongly supported by the US chemical industry, and the multinational chemical [industry], but especially the US chemical industry. They were very supportive of this treaty and <**T: 25 min**> helped push it through [US] Congress and all that sort of stuff. They were a lot of support. Some of what OPCW does is they do try to help these countries, not only in their inspections and writing their laws, but in teaching industry how to be safer and more secure. Now there is some pushback to that because people don't, they don't want OPCW to have too much mission creep, as you might say. But there is some connection. I have been to one OPCW meeting where I've given a talk about what we're doing, but I don't do a lot with OPCW, but my State Department people do. And sometimes I'll help them find experts to come to talk to these meetings and things like this. That is the only way that I see Europe involved in that sort of thing, and they are. I mean, European countries are good supporters of OPCW and they, I think, were organizing . . . . I'm helping State to organize, to identify speakers at the meeting in northern Africa later this year. I'll help provide speakers if they need them . . .

**DOMUSH:** Now, is that the Morocco trip or is that . . . ?

**JACKSON:** No, it's completely different. It's an OPCW meeting later in the year. No, I'm sorry. In 2011. Anyway, so the Europeans are providing a lot of the speakers for there too. They help support people to go there and talk in North Africa to chemical industry and things like that. So that's what they're doing, but that's really different than what the Chemical Security Engagement Program is. But there's an overlap in what they do and what I do. It's a good thing.

**DOMUSH:** Yes, very much so. So sometime in the last couple of years, and I, unfortunately, didn't print out the details of this report, so I'm going to try and remember the details of it. But sometime in the last couple of years, there was a report that was published about chemical plants in the United States and their safety. It may . . .

**JACKSON:** Their safety or their security?

**DOMUSH:** Their security. Sorry, I misspoke—their security. It was something that made headlines and didn't seem to make headlines in a very good way, especially in this area, because there are so many chemical plants in this area. Now one of the chemical plants that was said was not meeting the security standards—not security standards that exist, but security standards in an ideal form—it was a chemical plant that my husband, who is a PhD chemist, works at. And there was a lot of discussion here within the Chemical Heritage Foundation about this report. Nothing that we did anything about, but just kind of discussion in the building.

**JACKSON:** Right because it's your business.

**DOMUSH:** It's related.

**JACKSON:** It's related.

**DOMUSH:** It didn't make any kind of waves in terms of people who aren't interested in chemistry. Those headlines, they scanned them and thought, "Oh, that's alarming," and moved on to whatever the next headline on the computer was. But it got me to thinking about whether or not our own security at these chemical plants . . . and as you mentioned, the multinational corporations in the other countries, they already have security measures, and they enforce those and have safety requirements and things. And they're already doing things. They're already on track. Are you looking at all at the United States and thinking about our own security when you go to these other places and see what it could be . . . ?

**JACKSON:** Well, you know, if you went to these other places, and you heard somebody complain about US security, you'd laugh, okay. I mean, we're splitting hairs when it comes to the US security, compared to some of the places I've been to. That's my first reaction. But the thing is, is that as I mentioned before that I was on the Board of Chemical Science Technology [BCST] during 9/11. So I was involved in many of the discussions at the National Academy [of Sciences] about security—and chemical security in particular—following 9/11. As well as Sandia has been involved because Sandia . . . during the Vietnam War and when there was a lot

of unrest in the U.S. itself during the Vietnam War, the US government became more and more concerned about protection of nuclear weapons within the United States and overseas, but definitely all our US weapons here. They started a security program **<T: 30 min>** at the Department of Energy or what it was then. Sandia was one of the leaders in that developing a whole security paradigm for protecting high-consequence things. Sandia and several of the other national labs became experts in security. I mean, just world-class experts in very high-risk security protection. Because we had all that experience then by 2001 or 2002, Sandia was also very involved when people started talking about protecting US infrastructure and chemical security. Between all of that, the BCST . . . in fact, I was in a group that was involved in the anthrax review, which just was declassified relatively recently and our physical security. [. . .][11]

I was in a lot of these sessions about the security of chemical plants and transportation of chemicals and all that sort of stuff. Now I don't have access to . . . let me step back. I've learned a lot about physical security and how to design physical security in the past six years. When you design a security system in a rigorous manner, you start out with what is called a design basis threat, okay? Your design is based on your threat, what you perceive your threat to be, and your greatest threat. When it comes to most threats of high-consequence facilities, defining that threat is always classified because you don't want anybody to know what that is because that's what you design against, right? You don't want anybody to know. I don't have any information—any classified information—that would tell me what the threat is or what the government thinks the threat is against chemical facilities, so anything I say is said as a complete amateur. I mean, I don't know anything about that. I don't know what kind of basis threat that they feel there is out there the government has heard. I don't know what kind of intelligence there is and this sort of thing. But I will say this that there is a huge difference between the way the Europeans perceive the threat against the chemical industry, and the way the US does. After 9/11, the US went nuts. You know, they started this whole chemical, CFAA, Chemical Facility Antiterrorism Act [of 2009]. They drove all these regulations for security of chemical industries. You know, there's been a lot of regulations, and I think that the industry— I have to get some more water. [coughing]

**DOMUSH:** Okay.

[END OF AUDIO, FILE 1.4]

**JACKSON:** There's nothing to be worried about compared to the Americans. For some reason the Americans think that . . . they're afraid of what's going to happen, terrorists might attack a chemical plant. I remember the one time I went to OPCW for this meeting where I said I talked at. I used to work with the American Chemistry Council's security person. He's since moved on to work at DHS, but I worked with him a lot. And I always traveled with him to OPCW. One

[11] Noel Fletcher, "Sandia National Laboratories Makes Key Contributions to Anthrax Investigation," Office of Scientific and Technical Information, September 1, 2008. Accessed at https://www.osti.gov/servlets/purl/1706324 on 31 May 2022.

night we went out to dinner. We met several times with his European counterparts; Cefic [European Chemical Industry Council] is the European industry association in Europe. I remember once just literally sitting between a Cefic person and a US person, and they were arguing, and it was just back and forth, back and forth, you know, about that. [laughter] But I was literally caught between the Europeans and the Americans arguing about security of chemical plants.

I mean, the Europeans were really . . . they just thought that the Americans were out of their minds and that they were wasting money and that this was not an issue, and they didn't have a problem. They've had terrorism in Europe for years, and nobody ever attacked a chemical plant, and what were they thinking? The Americans were [saying], "But we're so vulnerable. We rely on these and infrastructure." And blah, blah, blah. You know, so anyway, there's a big difference in opinion between the Americans and the Europeans as far as the need for security in a chemical plant. I mean, clearly a chemical company doesn't want anybody to wander onto their facilities. That's not . . . and that's a safety issue too. But the more hardened security that we're having to do now with our chemical plants, just isn't, whatever, to the Europeans. It's just irrelevant. There is a difference in philosophy there too.

**DOMUSH:** On, kind of, a different take of all the traveling that you do, and all the places that you get to go, do you ever get to go and do a little sightseeing or a little vacationing? Or do you just go for work and for the meetings and then move on to the next place?

**JACKSON:** I do both.

**DOMUSH:** Okay.

**JACKSON:** The first year, I was pretty hardcore. I, kind of, went, and I left. The only times that I would sightsee would be if I was at a conference or something and they had a sightseeing afternoon, you know, some organized thing, so I was pretty hardcore. But I started as much as I can . . . well, also when I hired Pauline [Ho], my first staff member—Pauline is a wonderful traveler, and she and her husband have traveled the world just for fun. Pauline would set up all these things for me. I would just do them, you know. One time after we were in Bangkok, there was four of us. And it's been great for our team in—as our team's gotten bigger—creating a real good team sort of thing. One time we were in Bangkok, and she arranged for us to go to Siem Reap, Cambodia, which is where Angkor Wat is, where all the Buddhist temples are and everything. So we flew from Bangkok to Siem Reap. We spent two days touring Angkor Wat and then we go back to Bangkok and then home—or actually, some of them went to other places, but I went home. And that was . . . oh, that was one of the most amazing places I've ever been. It's great when she can do that, and we have done that sort of thing in several places. I also have tried to start bringing my children, if I can.

**DOMUSH:** Your children are about fifteen?

**JACKSON:** They're sixteen now.

**DOMUSH:** Okay.

**JACKSON:** So in January of 2009, I brought one of my sons [Jackson] to Egypt with me.

**DOMUSH:** Wow.

**JACKSON:** Yeah. That was so cool, and because I brought him with me, we went . . . the meeting was in Cairo, [Egypt]. We went first, and we went to Luxor, [Egypt], up the Nile River I guess it's called. We toured there for several days first, and then we went to Cairo. I was in Cairo for a full six days. It was five days for <**T: 05 min**> a conference, and then the rest of my team flew in at the end of the conference. We had a workshop, a one-day workshop there. But this was a Federation of African Societies of Chemistry meeting as well as an Egyptian Chemical Society meeting together. Like I said, it's my job to go out and get to know chemists around the world. You know, I get paid to do this. So I have to go to the conference and meet everybody. I mean, it's just like, "My God. I can't believe I get paid to do this." [. . .] I had to go to the conference for five days then, so I would send . . . Jackson went on some tours on his own, which of course is always funny, because, you know, well, I'm in Cairo and I'm working, I'm going to something. And I pay all this money for my son to go tour someplace else, and I think, "What's wrong with this picture?" [laughter] I'm working. He's seeing it, but anyway. And the day of workshop, when we gave the workshop, I send him . . . he went to Alexandria, [Egypt], so he got to see the Mediterranean [Sea] in Egypt, and I never did. [. . .] He really liked that, and I loved having him with me. Then this summer when I went to Turkey, my other son [Christopher] came with me, and the second son joined us at the end of the week, so my first son got to tour all over Istanbul, [Turkey], while I was working. Then both sons came. We were there for a couple more days, finished up, and then we went on tour of the Mediterranean part of Turkey.

**DOMUSH:** Oh wow.

**JACKSON:** For a week. It was fabulous. And next year . . . so I'm saving up all my frequent flyer miles, and I have a lot of frequent flyer miles. I'll bring them a lot of places. Then I'm going for ACS. Plus, at this point in time, because it doesn't always coincide with their free time, you know, they're older and they're more involved in things. I have always wanted to take

my family to Jordan because I love Jordan very, very much. It's a wonderful place. We'll probably go to Jordan next summer. Even if my husband doesn't want to go, if he'd rather vacation somewhere else for part of the time, I'll take my kids to Jordan, and we'll see that.

I do that somewhat. And I like seeing things. I like seeing . . . well, Angkor Wat was just stunning. And I like seeing, you know, things in Bangkok and temples and Buddhist temples. I like seeing . . . oh, I certainly liked seeing the pyramids and all of the fabulous things in Egypt. But I'm a really people-oriented person. And what's really unbelievable to me that it's just still after three-and-a-half years, it's just fantastic is that I get to meet and make friends with chemists in different parts of the world.

I mean, that the night I found I won the ACS presidency, I was in Jordan in Amman. I was there for the Malta Conference [2009], which I don't know if you've heard about it. Anyway, I was there for a conference that has in the past partly been supported by ACS although I was there for my work at Sandia. That's what was paying me. But I have a really good friend who lives in Amman. She's a chemistry professor at the University of Jordan. She and her husband took me out to dinner that night while I was waiting to get the phone call because they found out at noon in the US, but it was eight o'clock in Jordan. And so I went out with her and her husband. You know, and I'm like . . . and I've known them for a while. Actually, they were in China with me when we all went to the Asian Chemical Societies, the other . . . so I've known them for years, and they were wonderful. They're Muslims, so they don't drink, but they ordered this tiny, little champagne bottle for me, and they were so sweet when I won. I mean, that is just so cool. To me there's nothing . . . I mean, I love seeing the Roman ruins in Jordan. I love seeing, you know, Petra, [Jordan], and all that. But being friends with Amal [Al-Aboudi] means more to me than anything else.

It's just Amal, the Jordanian chemist friend of mine, Supawan [Tantayanon], who is the chemist from Thailand, and she's president of the Thai Chemical Society, and Zuriati from Malaysia, who first, you know, took me . . . and there was this young woman named [Mylene Uy] <**T: 10 min**> in Southern Philippines, and Mindanao.[12] And she is just amazing, and filled with energy, and often works in a war zone and keeps working and has brought safety to the university. I mean, these people are just amazing, and I get to meet them. They believe in their countries, and they want to help their countries. They're out there making a difference. There's Muhammed [younis Gharaibeh] from Jordan, who was trying to get a Fulbright Scholarship, and he's really a bright inorganic chemist and a sweet man who has brought us over to his house and served us traditional Jordanian food.[13] I mean, it's just a privilege and an honor to be a part of these people's lives and to get to meet what I would call . . . what are to me are the heroes of chemistry—people who care about teaching their students chemistry, who care about sustainability, and who care about improving the level of education and safety and research in their countries. And wow, you know. It doesn't get any better than that.

[12] Science History Institute staff were unable to verify with the interviewee if this name is correct.
[13] Science History Institute staff were unable to verify with the interviewee if this name is correct.

**DOMUSH:** No, it doesn't sound like it. It sounds pretty good.

**JACKSON:** It does. It's been really great meeting some of these people and getting to know them. It's just been, you know . . . it's an honor to know some of these people.

**DOMUSH:** Now, the ACS presidency, you begin I guess in January as president. I think it was sometime this summer that you found out when this . . .

**JACKSON:** No. It's a really crazy long process. I was asked to run in August of 2008.

**DOMUSH:** Okay.

**JACKSON:** I wasn't supposed to tell anybody that I was asked to run until January of 2009. Then in March of 2009, the ACS Council selected the candidates from four candidates to two candidates, so I made that cut then. Then there was a petition candidate, so there are actually three people running. The election was in November of 2009, and that's when I found out. Then I started as president-elect in January of 2010, which has had a fair amount of responsibility with it as well. And you want to be geared up for your presidential year, so you can kind of roll with it because it goes fast.

**DOMUSH:** Yeah. Well, it's just the one year.

**JACKSON:** Right. But there are three years of . . . I have a commitment of three years, as president-elect, president, and immediate past president. I'll probably finish up a few things, and then beginning on my immediate past president year that comes with the president. Then I can see most of the past presidents, sort of, loosen up with time, because, you know, it's a lot of work.

**DOMUSH:** How was the running for ACS president when you were first approached? Was that something that you were eager to do?

**JACKSON:** Well, it's funny, because when they asked me, I said . . . you know, they said, "Will you run to be president-elect? We run in 2009. You'd be president-elect." That's kind of how they call it because you run to be president-elect. I'd been working on the international scene at this point for a little over a year. And it dawns on me I'm thinking . . . they asked me and the first thing I'm thinking, "Okay. So that means I run, then I'll be president in 2011." I

said, “Isn’t that the International Year of Chemistry?” They were like, “I don’t know.” I’m like, “I think that’s the International Year of Chemistry.” And I was like, “Yeah. I’ll do that.” You know, of course, I didn’t really say that because I had to go back and ask my employer and my husband. Not in that order. That was the first thing I thought of, you know. I thought, “Oh my gosh. I could be president of the International . . .” It was okay. It was funny, because, you know, you have to learn to put yourself out there. Who’d have thought? I found it very interesting to watch Hillary [Rodham] Clinton run for president as a woman. And I watched her because I knew then that I was going to be a candidate. **<T: 15 min>**. I guess by August she was . . . when they asked me, I don’t know if she was still . . . . I guess she wasn’t really then much in the running anymore. But I did go back and watch old things and thought about that afterwards because she would ask people for their vote. And there’s this whole thing about women being more aggressive and asking for things, and like I said earlier, that didn’t necessarily come easy to me. I had to learn to stand up for myself, but luckily, I had already gone through that lesson. I had to be more . . . it is not a natural place to be for probably most people to be asking for a vote and putting yourself out there and saying this sort of thing.

**DOMUSH:** Well, as you said earlier, your interest in political science was always kind of being the behind-the-scenes person, not the up-front person.

**JACKSON:** Right. So it’s like being your own doctor because I remember thinking, “Well, could I really use some of that political skill for myself?” It’s, kind of, like I said, you aren’t objective about yourself, so it’s a little harder. But I did do a lot of . . . . I did go back, and I looked at a lot of the races and I read the statements. I looked, and I’ve been actively involved in ACS for—when I was running—for almost thirty years. I mean, really involved for many, many years. So I know the culture, and I know a lot of people. But I still went back, and I read a lot of the electoral statements. And ACS is a very democratic sort of culture. It is telling that it’s only been in the past couple of years that ACS has had a Fellows Program because we are not . . . even though there is an elitist culture within chemistry, there is not an acceptability of an elitist sort of recognized culture within the American Chemical Society. It’s a very democratic, everybody be equal, sort of, culture, and that’s probably part of why I’ve kind of liked it. You know, that’s why I jell with it, and that’s why it attracts people. It’s a very positive thing about ACS.

I noticed that most of the people who won ACS elections were people who didn’t talk about themselves, that they were people who talked about what their vision was for ACS or what their vision that they wanted to do as president rather than say, “I’ve been involved with ACS for thirty years. And I know this, and I traveled the world. I know chemists everywhere, and I would make the best ACS president internationally.” I mean, that would never win me an election. And that’s what I did. That was my political assessment as far as I could tell, and so that’s what I followed. I guess it worked. [laughter] So either that, or my husband’s contribution to ACS was . . . first of all, he had never joined ACS.

**DOMUSH:** Really?

**JACKSON:** Until he could . . . and then he said, "Well, I guess I have to now" because he's a chemical engineer. He has been a member of AIChE [American Institute of Chemical Engineers]. He joined ACS, and he said, "Because I have to vote for you. You know, I want to vote for you." He would get on the computer after . . . he was still working on the computer sometimes for doing whatever; he was reading his blogs on the computer. He would go on Google, and he would Google my name over and over again until it would come higher and higher and higher [in the results]. And you get my website by just putting in Nancy Jackson. It was really funny. He was . . . that was his contribution to my campaign, moving my name up in Google. I'm thinking, "I'm not sure whether that's really . . ." I guess it's good now, but, so anyway. It was okay. It was an awkward feeling to run because you don't ever really get any feedback until the end, you know.

**DOMUSH:** Right. So what have you had to do this year during your president-elect year?

**JACKSON:** Well, I'm a member of the Board of Directors again. And the good thing is I already know what that means, you know, so I already have that experience. That was kind of nice. But that does give me responsibilities as far as attending four Board meetings a year. Then I need to think about what my themes are going to be for my ACS. What do I want to do? What kind of symposia or task force or this sort of thing do I want to do? I've done a lot of thinking and planning on that and deciding **<T: 20 min>** what I'm going to do, who I'm going to have on what task force, and all this sort of stuff. I'm, sort of, lining everything up and trying to get everything ready to go. I mean, well, I'll never be ready. But there are several things that I really want to do. Initially [. . .] my main thought was that the thing to do is to stick with the International Year of Chemistry themes, some of them, communication to the public, and some of that sort of stuff, and really the international aspect.

But let me step back. I was on an international trip a while back. I was at a conference. It was in India, and somebody told this story for my benefit. It was actually supposed to be a joke about how the United Nations sent out this survey one time about . . . it was the survey to its member states. It said, "What is your honest opinion about the financial viability of having clean water in the rest of the world?" or something like this. And they sent it out to all of their members. Well, the Chinese didn't know what honest opinion meant, you know they complained to . . . they didn't know an honest opinion. The Greeks didn't know what financial management meant. You know, Bangladeshis didn't know what clean water meant. And the Americans didn't know what the rest of the world meant. I think that even though I didn't really think it was that . . . . I mean, it was told at my expense. I think there is some truth to that. And the rest of the world is just now catching up to the US, we're not . . . especially in the scientific world. So by the time that I got the presidency and got in there and got part way through my president-elect year, you know, there are so many people though who have started to realize that, that we need to be more international. [. . .] I realized that this is a good thing. I don't have

to be as focused on what we're doing internationally, because people are already doing that. And Joe [Joseph S.] Francisco, who's president now, has done a great job of pushing the whole international thing, and he's had a task force that's looking at the international thing. You know, I'm like, okay, that's great. Couldn't ask for more.

There are some other things I'm going to do. I want to look at communication to the public. In particular I want to look first of all at the resources ACS already has for communicating to the public. I mean, they have all these . . . they have *C&E News*. I mean, granted, a lot of that news is only of interest to chemists, but not all of it, and not only that, they have these great writers that write these things like "What's this stuff?" or things that could be used in other places. You know, maybe we should syndicate it, have a syndicated news—I don't know. I mean, I just don't know. And so I'm going to look at utilizing what we already have at ACS for communicating to the public as well as investigating what the best way is to do that. I mean, I have my own opinion on communications that in many ways go right back to what we had initially started about . . . talked about in the beginning, in my whole Native American background, because in my background in the Native American side of my life, you learn things from stories. That's where truth is, and that's what people are interested in, and that's how they communicate. You tell stories.

I also think that . . . this is something I've learned now working with the diplomatic world versus the scientific world is that Americans and scientists in particular—American scientists in particular—have somehow devalued or forgotten the role of relationships in the way the world works. And to a certain extent, it comes I think from our desire as Americans to be fair and not to give things to our friends, but give things on a merit base, which is a good thing, but, you know, it's relationships that make the world go around, so it's stories and relationships <**T: 25 min**> that I feel are necessary to better communicate science and chemistry to the public. Now how that translates into what ACS does, I'm going to leave that to my expert task force that I intend to appoint of which I have lots of really amazing people in my mind who I've met in the past couple of years, who I would like to put on this. That's one thing I'm really interested in and will do that probably within the next month or so is try to put that task force together.

The other area that I'm really interested in since the international seems to be going well on its own is in the area of energy because the ACS has the Petroleum Research Fund [PRF], and, you know, that energy is an important thing of the future. Anyway, I'm going to try to get ACS—and I'm working with some staff on this—to do a technical study. They've never done a technical study before. A lot of professional societies do technical studies, certainly the American Physical Society does and this sort of thing, and I'd like to set a precedent for doing a technical study, pick something like energy that's related to sustainability, green . . . you know, to the things that ACS does, like green chemistry and PRF and all that sort of stuff. And because my background is in energy and talk about a study looking at what kind of research we should be investing our money into in order to do the energy transformation that we need to do in the next fifty years. There have been a lot of studies in this area about how the US should switch our energy makeup if we had thirty or fifty years to do it. And they're really good studies, and especially the one that came out of the National Academies, an excellent study. But it, kind of,

talks about the overall overarching thing, it doesn't get into—and it does talk about what kind of technologies we may need to have better to be where we want to be in thirty or fifty years—but it doesn't really look at the kind of research we should invest in.

**DOMUSH:** Right. Not the technical details.

**JACKSON:** It points the way. But so I'd like to take it one step further than that study, and just, sort of, do more of the technical part about what should we be investing with, which hopefully will help the PRF in making its decisions, as well as other Department of Energy or whatever because the one thing I've learned about policy-making from having been in Nonproliferation for many years is that policy is made by a lot of people, a lot of smart people sitting around thinking, having workshops, having meetings, writing papers on ideas related to policy. And with time the whole movement or the thinking is shaped and changed by these people contributing sort of intellectually or groups contributing intellectually. That's how policy moves along. That even though you may be one group that makes one study and then makes only a small difference, that is how you change policy in the long run is by this collective thought that gathers in time will eventually have an effect, even if sometimes you feel like you're speaking to an empty room.

**DOMUSH:** Hopefully that's not the case.

**JACKSON:** Right.

**DOMUSH:** In thinking about kind of these task forces—that doesn't sound right. I don't think that's the proper plural. In thinking about these things related to ACS presidency and related to the International Year of Chemistry, how much of the International Year of Chemistry do you get to bring into the ACS presidency? How much do you get to, kind of, tie those two things together, or are they already going to be tied together?

**JACKSON:** Well, ACS is going to be celebrating the International Year of Chemistry. I can either get on the boat and go with it, or I can do my own thing and try to compete with it, you know. [. . .]

**DOMUSH:** Okay. But you didn't need to stress the international more, because that's already, kind of . . . people already are on that bandwagon.

**JACKSON:** Yeah. People are really on that bandwagon, **<T: 30 min>** yeah. Much more. I think it's really been ramping up, I think. Yeah, I mean, I also believe that our large advantage in technical capabilities—science, research and development in the US—is not going to be around forever or really for very long, for that matter. I believe that the rest of the world is catching up to the US in R&D and science and technology capabilities, and I can back that up with a lot of statistics too, and I have done that. I mean, it's a talk that I have given and probably will give a lot. You know, there's a lot of investment . . . and primarily in Asia, and it's not like I . . . it's just I first experienced it by traveling around Asia, and then I went and looked at the data, and it turns out it's at least as bad as I thought, if not worse. Asia is clearly going to be a great leader in science and engineering in the coming decade, and it's not just China and India. It's Malaysia and Thailand and Korea and, you know, Taiwan and whatever. They all are . . . they're huge. They're going to be. They're investing enormous amounts in research. They're getting better. They're investing in manufacturing. Manufacturing, even R&D is leaving the US. Certainly, the whole crush of the pharmaceutical industry . . . . I mean, what is happening in the pharmaceutical industry is almost identical to what happened to the information technology industry here in the US. I mean, it's remarkable to me that people haven't noticed the similarity more. I mean, information technology crashed in the late 1990s. They moved overseas. It's not here. Young people aren't getting computer science degrees anymore. At Sandia, where we're trying to do cybersecurity for the US government, we can't hire people. There aren't any.

**DOMUSH:** How interesting.

**JACKSON:** And it's like . . . anyway. So I have some very great concerns about this pharmaceutical industry leaving the US shores and moving overseas. I don't see it getting much better. I see it going the way of IT, and we're losing our manufacturing base here, and it's very disturbing. There are many people at ACS who are also concerned too, and that's something the Board is very concerned about and hopefully we'll be involved in.

**DOMUSH:** So how do we combat that? Do we bring more emphasis onto chemical and scientific education and try and shore up, kind of, the next generation of scientists? Or do we make efforts to try and keep those industries here in whatever ways we can?

**JACKSON:** Well, now you're getting very political. Now, it's a policy sort of thing. It's really, it's particularly entertaining for me on the Board, because we have—and I should be able to say their names—we have Bill [William F.] Carroll, who is high up in the chemical industry. So he has a very industry point of view of life and the way he looks at these things. Then we have Dennis Chamot, who worked for many years for the unions, and has a much more—it's not the National Academy—but has a much more workers' perspective of this kind of issue. And I love being between the two of them because they have really these very different opinions, you know. And they're very respectful of one another too. They have interesting discussions, but they don't devolve to arguments or anything like that. It's wonderful to hear both of them talk

because they're bright, thoughtful people. They just have different points of view. It's very interesting to hear them because sometimes I forward all this stuff I read in the paper about this and that, and I predict how they'll respond. But it's always interesting to hear how they perceive an article that I've read. So there are a variety of . . . you know, there's a scale of how far you can go that, **<T: 35 min>** how far government should be involved in ensuring manufacturing or an industrial base in the country. And where you draw that line depends on your point of view, and that is a personal point of view.

Obama has recently hired a manufacturing strategy person. I mean, that's almost literally what he calls it. It's not an industrial strategy or not. I mean, it's very low key and low down in the [US] Treasury Department. The Obama Administration is not interested in making rules that may flout free trade. You know, I don't know. On the other hand, do we have the best tax structure for encouraging people to keep things here? Probably not. Do we have a monetary structure that enables investment in entrepreneurial sorts of things that will lead to manufacturing in the US? Probably we don't have the best support we could. There are better ways we could support capital investment in manufacturing here. You know, there are a lot of things—the way you control money or encourage capital, the way you control taxes, the way you write taxes, and encourage people to have things here. It appalls me that the US military buys technical things from other countries, you know, or windmills or whatever from China, or PV [photovoltaics] or this or sort of thing. But they do. You know, we could change that rule. I mean, when I fly for Sandia, I have to fly American. And you know sometimes it costs me thousands of dollars extra to fly American, but I understand that rule. And I understand why we do it, and it makes sense. But then why aren't we doing that in everything, you know? Why am I allowed to buy furniture from China, but I can't fly Chinese airlines? You know, we have to think about these things. I think there are a lot of things that we can do, but they tend to be government policy. And in that sense, I do side more with the education area. You know, what are we going to do—educate a bunch of people to be unemployed? No. Education, do I think that we should improve the science of education of non-scientists? Yes. I think that in the education area, that's the most important thing we can do.

Because if you read Tom [Thomas L.] Friedman's column last Sunday, there was just this . . . . I've got to get that article and print it out.[14] He was talking about . . . . I don't know what he was talking about. But anyway, he interviewed this person from China, who said, "You know, there's no discussion about global climate change in China because everybody's an engineer, and nobody quibbles with small amounts of data. We all know there's a climate problem." And I particularly like that, not just because of the climate issue, but because the point is, is that in China an engineering degree is like the business degree in the US. You know how kids go, everybody all goes, "Well, I don't want to do it. I'll just get a business degree, and I'll figure out what I want to do later." In China, people get an engineering degree first. Then they go into government, and then they go into business, or then they do this. There is a much stronger technical background in non-technically working people. I think that that has led to different outcomes. So do I think that our non-technical people should have more of the stronger technical background? Absolutely. I think that would have more influence on us than making . .

[14] Thomas L. Friedman, "Aren't We Clever?" *New York Times*, September 18, 2010.

. why would we want to educate more PhDs so they can be unemployed? I mean, first of all, students are too smart for that.

**DOMUSH:** Right.

**JACKSON:** Second of all, you know, it wouldn't get us anywhere.

**DOMUSH:** Now, I'm going to ask a question. Then you can feel free to decline to answer this if you want. Do you think that in educating more non-scientists in science in some fashion—not that everyone should necessarily go out and get an engineering and science degree—but in some fashion they should have more science background? Do you think it's equally important or more important for politicians to have that scientific background as well? I guess I'm thinking of this in particular, because right now so many of the politicians that are on the news, so many of these Tea Party **<T: 40 min>** candidates seem to have no science at all.

**JACKSON:** Well, so do the Democrats and the Republicans. I mean, this is an equal opportunity for bashing here. I can't think of a political organization that I couldn't bash for that reason—for the lack of technical understanding. Yeah, I think it's important, but I think that if you look at our business leaders, I think that it's been profoundly negative on business in the long-term to have many technical companies run by accountants, so I don't think it's just in politics, I also think it's in business as well. I mean, anybody who thinks that you can go in and turn on and turn off research like it's a car engine is clearly totally ignorant on the whole process of research. What the pharmaceutical companies are doing now is that they are really decreasing their investment in research. They see all their lucrative patents, Lipitor, all that stuff running out, and they're closing down all their R&D. They're narrowing down the number of diseases and problems that they're looking at, which all tend to overlap one another, I might add. They're going to be more efficient in their research, right. Well, guess what? They're not. And it is not going to happen that way. And they are not going to have more drugs coming out of that research as they narrow down. Maybe if they go to India because Indians are as smart as Americans, you know, and have research there, they might do well. But if they just overall cut down the number, I mean, it's not going to happen.

To me, when I see what the pharmaceutical companies are doing now, that's what they're doing. They're all shutting down the amount of research they're doing overall. And they think they're going to just continue to do hunky-dory. You know, they're just going to be . . . they haven't seen anything come out for several years. The easy stuff is gone. We're just going to cut back because we're not going to have that much money. I'm like, "What are you thinking?" And there are a few people out there who are saying that, "Uh, hmm, I don't think that's gonna work." But for some reason they're all doing that. And you got to say, if this is a PhD chemist or pharmaceutical chemist, medicinal chemist making these decisions, they've been completely cut off from their research experience. But chances are . . .

**DOMUSH:** In most cases, it's not.

**JACKSON:** It's not.

**DOMUSH:** Right. Well, I guess, stepping aside from that conversation, in looking at again, kind of, the upcoming ACS presidency year, and we're so excited here about the International Year of Chemistry. We tell everyone about it.

**JACKSON:** Yeah, me too.

**DOMUSH:** Are you the first ACS president that can identify as Native American?

**JACKSON:** Yes.

**DOMUSH:** How exciting.

**JACKSON:** Yeah.

**DOMUSH:** How exciting. Do you then get to, kind of, flaunt that credential and, you know, emphasize that in some way?

**JACKSON:** Well, once again, I will go back to say that I still think of that, to a certain extent, as a private sort of thing. I look white, but so my being Indian is a personal thing. It's part of who I am and not just who I look like, and so I'm not going to make a big deal about it, but what I will do is, I'll be . . . already I'm planning to spend the whole American Indian Science and Engineering Society, I'll be at that meeting. I'll be involved with AISES, and that's the kind of thing that I'll really be involved in doing. That's where I'll use my whatever is with AISES and do whatever I can for AISES. And ACS has a really good relationship with AISES, and they want to have a good relationship with AISES, so they're 100 percent behind me in that. I think that's a good thing. So that's probably about the only place where I'll really do that.

**DOMUSH:** Okay.

**JACKSON:** Although it produces a little anxiety in me, because I have some inherited jewelry. **<T: 45 min>** It's old, you know, because it came off the reservation with my grandfather and his brother, way back. And one piece in particular is really beautiful, but it needs to be restored. [. . .] So I know I had a whole year to try to restore it, but I haven't done it yet. And my picture, my official picture's going to be taken November 15 or something like that, so I'm a little behind, but I want to get it restored. I'm hoping that I'll still have time because I want to have my picture taken with that piece. I want it to be on my official . . . but that's all I . . . . I don't want to say anything. I just want to be it.

**DOMUSH:** That'll be very . . .

**JACKSON:** Does that make sense?

**DOMUSH:** Yes. It does.

**JACKSON:** Anyway, of course, I live in a perfect town to have it restored, but I just haven't. The best place to have it done is only open nine a.m. to five p.m., Monday to Wednesday, and, you know, I travel, and . . .

**DOMUSH:** You have to have Alicia put it on your calendar. [laughter]

**JACKSON:** I know I do. I don't think it'll be that hard. But anyway, I have to go and have it redone. The only other time I wore it was when I received the American Indian Science and Engineering Society Professional of the Year Award.

**DOMUSH:** In 2005.

**JACKSON:** My father went with me to that.

**DOMUSH:** How nice.

**JACKSON:** Oh, yeah, it was a great experience. So I've got to get that done. I would say that I won't . . . there's no flaunting it, but there are decisions I will make and things I will do that will be a result of my Native cultural background. But you might not know that unless I tell you that.

**DOMUSH:** Right. One of the reasons that I asked the question that way is because I met you very briefly at the March ACS meeting. Donna [J.] Nelson introduced us.[15] And it was very brief. Donna Nelson introduced us and said, "She's going to be ACS President. She's Native American."

**JACKSON:** Right.

**DOMUSH:** And she was so excited. Donna Nelson is always so excited and so happy, and she's wonderful, but it was just because of the way that she introduced me to you that stuck in my mind, and I was just curious about it.

**JACKSON:** Well, and that's important to Donna because she comes from that same background.

**DOMUSH:** Exactly.

**JACKSON:** Right. I would have talked to her about it. I would have felt very comfortable talking to her about it, and that's why she would . . . well, and because [E.] Ann Nalley knows, and she and Ann are close.

**DOMUSH:** And because you were AISES Professional of the Year.

**JACKSON:** Yeah, that helped.

**DOMUSH:** Well, it's almost four p.m. and we've been talking for . . .

**JACKSON:** Ever.

[15] Donna J. Nelson, interview by Hilary Domush and Leah Webb-Halpern at the University of Oklahoma, Norman, Oklahoma, 21 and 22 July 2008 (Philadelphia: Chemical Heritage Foundation, Oral History Transcript # 0482).

**DOMUSH:** Quite a long time. I'm, kind of, out of questions that I have for you, but before we finish up, I just wanted to ask if there was anything that I should have asked or anything else that you want to mention before we finish up?

**JACKSON:** I don't think so.

**DOMUSH:** Okay. Well, thank you so much for all of your time.

**JACKSON:** Oh, my pleasure.

[END OF AUDIO, FILE 1.5]

[END OF INTERVIEW]

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