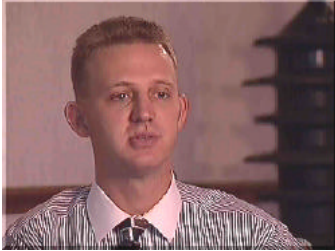




Sloan Career Cornerstone Center

Profiles of Mechanical Engineers



Craig Redding

**Project Manager
H.O. Mohr Research & Engineering
Houston, TX**

Education:

BS, Mechanical Engineering, Texas A&M University

Job Description:

Project Manager, involved with mechanical analysis, design, fabrication, and testing of offshore oil drilling and production equipment, plus the development of proposals and interaction with clients.

Advice to Students:

"Work on communication and presentation skills, because success may often depend on the ability to make effective presentations to clients. Once on the job, an engineer must continue to develop his/her expertise, for this is the essence of an engineering services business."

Comments:

"In college they don't teach you how to act in an office environment, or even how to act when you're offshore on a platform. They don't teach you how to communicate effectively with people, and so that's some of the things that you learn every day. But, most importantly, from college, it's not just learning the course work, but learning how to learn. If you learn how to learn you can go every day pick up on just about anything. If you can communicate and you know how to learn, you'll do well."

Video Transcript 1:

"In college they don't teach you how to act in an office environment, or even how to act when you're offshore on a platform. They don't teach you how to communicate effectively with people, and so that's some of the things that you learn every day. But, most importantly, from college, taking what you learned. It's not just learning the course work, but learning how to learn. If you learn how to learn you can go and every day pick up on just about anything. You'll know where to look for the answers. And when you pick up on the communications skills that you need -- which is talking on the phone, writing the basic correspondence and letters to people -- that is more important I think, so you can know where to look for things. If you can communicate, and you know how to learn, you'll do well."

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Interview:

Craig Redding is a 1994 graduate, employed by H. O Mohr Research & Engineering in Houston, where his functions are design engineering and testing of equipment used in offshore oil exploration and production. Redding finds that many of the new graduates who come for job interviews are not well prepared in writing clear, concise letters, or in verbal communications. He feels that engineering schools can only go so far in teaching communications and interpersonal skills, and then it depends on the student. He urges students to join professional societies and social organizations, where they can cultivate their communications and networking skills. Redding did just that, as an officer in his school's ASME student chapter. He points out that knowledge is of little use if you can't communicate it. In job interviews, his company is less interested in grades than in the candidate's ability to write, speak, present ideas, and sell expertise.

Redding: The most appealing thing about the job was that I would be in charge of projects right from the get-go. As a smaller but busy company, they could give me the responsibility that I wanted but didn't get when I was on the bottom rung of the corporate engineering ladder at a large company. I stay busy in the community as well as professional societies. ASME has been one of those that have backed me from my college career and has saw me through to where I am today.

Q: Let me ask you, just for the record, please tell me who you are and where we are at the moment.

Redding: OK. I'm Craig Redding with H.L. Moore Research and Engineering. I'm a staff engineer working on project management and project engineering. What we do is mechanical consulting and testing of oilfield equipment.

Q: Craig, let me ask you. After you began your initial studies as an ME, how did you get into this specific area?

Redding: I actually didn't study as an ME. I am actually an ocean engineer by degree, but got into the mechanical-engineering side of things. I started out in pipeline engineering for another company, and then moved over. I had known Harvey Moore through the industry, and actually just moved over here to do some pipeline work and gradually worked my way into the mechanical testing side of it.

Q: So are you a mechanical engineer or, by degree, an ocean engineer solely?

Redding: I am by degree an ocean engineer. The mechanical background that everyone has, both civil, all engineers have the basic fundamentals. Statics, dynamics and mechanics and materials kind of course work. That basic foundation is the same for mechanical and ocean engineering. Now, I utilize mostly that basic stress analysis, which everyone knows. But I have specialized also to know ocean waves, wave forces and structures, current and windloadings and things like that. So I apply mostly, in my job, mechanical engineering, solely. There is some of my ocean engineering background that I do utilize here.

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Q: When we were in the back of the plant or firm, whatever it is you call it, and you were showing us a tube that ran along the ocean floor, can you tell us a little bit about that project with regard to how your knowledge as an ocean engineer and ME overlap?

Redding: The project is actually an umbilical testlender, 7 hydraulic lines that run 63 miles to a sub-sea well, where these hydraulic lines will control valves and other actuators down at the sea floor. My background as an ocean engineer, basically, gives me the knowledge to know the sea-floor sediments and some of the forces. But the project is entirely a mechanical test, because we're determining the stiffness and the mechanical properties of this umbilical, so that they will know how to lay the line properly without overstressing the line when they bend it and bend it back, and how is the line going to stretch when it's loaded up. So it's all mechanical values that we're coming out to the test on that particular line.

Q: And I noticed that you were pretty enthusiastic about explaining to me how that project works. I take it that, for you, this is a particularly exciting project, and if it is, I'd like to know why, on a personal level. What does it tap in you, what is it about this project that you find particularly interesting?

Redding: Well, one of the interesting things about the testing industry that we're in is not only sitting in an office and being able to design things and go out and see if they work. What we do here is we design a method to break something; we'll design a fixture where we can put the sample in and we'll bend it, we'll pull it, we'll pressure it up until it breaks apart. And so I know through my background how this thing is going to work, and what I actually have done, I have worked on the other side of this same project on the engineering and just designing the concept layout. And so, when this project comes through -- this is actually my second phase, pretty far down the road that I'm involved with in this project -- I will eventually see this installed, and may be present to see it actually working in the field.

Q: So do you get a chance to go out and see when they're laying it in and see how that happens?

Redding: With pipelines and things, the laying and commissioning -- a start-up of running oil or gas through that pipeline -- is something that I would be involved with. This umbilical would probably be something that is just laid over a series of time and then we would be there to watch it start up as support in case there's any problems while they're laying.

Q: Let's get a little less specific about the work in general and talk more in terms of career. How old are you now?

Redding: I'm 24 years old. I'll be 25 in just a month-and-a-half, so I'm very young for the responsibility that I have in the job at H.L. Moore.

Q: So you've been out of school now, out of college, for about four years?

Redding: Two years. I graduated from Texas A&M in 1994. Actually, in August was when I received my degree.

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Q: And since that time, in the two years that you've been working, has it exclusively been at the company you're at now?

Redding: No. I worked for J.P. Kenney, a pipeline-engineering firm. It was an office job. I would sit at my computer and my desk and work out some calculations and print things out. It really didn't appeal to me. I like getting outdoors and getting my hands dirty, and in a smaller company like H.L. Moore, you get to learn the business -- the project side, the proposal, the management of people and the management of the projects -- quicker than you would if you're starting on the bottom rung of the ladder in a big corporate-development office.

Q: Are you making more money now than you were two years ago?

Redding: Yes. When I made the move from J.P. Kenney, I took a sizeable increase in salary. And since, I have done well here at H.L. Moore and have continued to see increases in pay.

Q: Do you think that what you're being paid to do your work here as an engineer is commensurate with the time and effort that you put into receiving an education?

Redding: Absolutely. I'm a little different. I come from a blue-collar working family. Growing up, through high school, there were several jobs I worked; union jobs, loading trucks, teamsters. My dad's been in the union for 20 some-odd years. And so the philosophy that my family had was, "Maybe you're wasting your time, you're reading books and you're not getting some hands-on experience when you could be out working and making money." And my salary actually is something, if I were to go to school, I never would have thought I would make what I'm making today even after going to college. You know, two years after graduation, I thought maybe ten years after graduation I'd be where I am. And so college has really changed not just the structure of how that will increase, but also it changed the philosophy that I had been raised in. And there were times when I thought that the pay should be based on the amount of physical work that you put into the job. Here it's more mental. I'm in a job that pays straight-salary pay. I don't get paid for overtime, so it's tough coming from a union background to work 60 hours a week and get paid for 40. My family still doesn't understand it. I can't communicate to them what that means and why I would do that, but I'm in here a lot of times till nine o'clock in the evening. I come in on weekends to finish things up when I've had plenty of work.

Q: How is your personal life outside the job affected by your commitment to the job? Do you feel that your life is pretty full on the outside of H.L. Moore?

Redding: Yes. I stay busy in the community as well as professional societies. ASME has been one of those that have backed me from my college career and has seen me through to where I am today. As far as personal life, I find it hard sometimes. Like any industry, there are ups and downs. And right now in the offshore industry, there's a lot of work. And so we've been real busy, and I find myself in, a lot of times, on weekends and the evenings. But there are times when you're in 40 hours a week and you don't have a lot to do and you get to kick back, so you learn to enjoy those times and not just jump around and find the busy work. And as far as personal life, I'm getting married shortly. I just became engaged a month or two ago. And so I spend a lot of time with the fiancée, and then I've got a "little brother" in the Big

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Brothers and Big Sisters program that I spend time with. So it's a really busy schedule that I have to fulfill, the full plate that I have right now.

Q: When you were in school studying engineering, you obviously had things, personal goals, things you wanted to accomplish, not necessarily project-oriented, but areas of your life that needed to be fulfilled with respect to career. Is that happening for you?

Redding: Yes. A goal of mine was teaching; if I could get involved with math and science education maybe on the local level, and maybe just see if I can improve not just the engineering but the science and overall physics and math for the local education area and public schools. So I followed up through ASME, actually, and that has helped me with the local professional societies, where we go in and we'll teach in the schools for the day.

Q: What do you think of the people you work with in the field?

Redding: A lot of times there's a wide variety of people that you work with. The research engineers may have a PhD in applied math or a PhD in engineering, and then there are the people that you interact with that have their high-school diploma, and you learn to work with these two different types of people. The research engineer may want you to do something 200 times just to get a good data set to see how the thing will perform over time, where you can ask the guy with the high school diploma and he'll tell you it's not going to work and he knows why. There are two different kinds of people there. So, it really helps to have hands-on experience and know-how, rather than just staying through school and going into an office job. If you've got the hands-on training, you can be the best at both of those things. You can know what's going to work from your hands-on training, and then you can know how to do some additional research to improve that.

Q: Let me ask you this aspect of your job. I'm sure that there are things that you can't learn in school about engineering, be it ocean engineering, mechanical engineering. What are the things now, several years into being an engineer, what are the things that you've had to learn slowly by picking them up on a day-to-day basis that you feel that no school can teach a student?

Redding: Through high school and college, you gain a solid background of course work, which prepares you for an engineering career. The fundamental courses that all engineers must take are things that you use throughout the rest of your education, and then you lead on into your job, and they provide a basic foundation which you'll use every day. Then you develop into the career development and your personal development. In college they don't teach you how to act in an office environment, or even how to act when you're offshore on a platform. They don't teach you how to communicate effectively with people, and so that's some of the things that you learn every day. But, most importantly, from college, it's not just learning the course work, but learning how to learn. If you learn how to learn you can go every day pick up on just about anything. You'll know where to look for the answers, and when you pick up on the communications skills that you need, just talking on the phone, writing the basic correspondence and letters to people, that is more important, I think, so you can know where to look for things. If you can communicate and you know how to learn, you'll do well.

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Q: And you feel that that's largely a function of doing rather than studying.

Redding: Right, right. You've got to be able to get out. I started, my sophomore year, getting involved in professional societies in college. I learned to network with people. I met many people in industry, and that actually has led me to where I am with my contacts. That's how I met Harvey Moore several years ago. There was a dinner meeting that ASME had, and that's where I had met him, and kind of just kept his name. You learn to keep business cards and how to identify people so that you'll know what they look like. If you have pictures, you label the pictures, and so you've got to kind of improve yourself, and you get to know people, and you'll get to know how to communicate effectively with those individual people, and you can work more effectively and use them as a resource.

Q: So, in essence, really, you're describing for people now the politics of going up the rung, and how that works.

Redding: Right.

Q: Could you go into that a little and talk about your history getting this job?

Redding: Well, getting this job was a little different than most. Coming out of school you would send out resumes, either "blanket" resumes to a list of companies that you found in the paper or through technical journals. If you know a contact, it's easier. You can have that contact take your resume to the right person. How I met and actually moved into the job here at H.L. Moore was, I was at an industry meeting, and Harvey just came up to me and said, "We're busy, we need some help. Would you like to come over and work for us?" And so, it's kind of interesting, you know. I'm trying to just have a good time and have lunch, and here's this guy pushing me to come and work for him. You know, I didn't have a real close relationship with Harvey then, but I made a trip over, toured the place to see what they do, and actually just was pursuing what positions they had available, and they had exactly what I was interested in. Basically the most appealing thing was that I would be in charge of projects. They would give me the responsibility that I wasn't getting at the corporate level when I was on the bottom rung.

Q: Harvey offered you a job, kind of point blankly. What do you imagine he saw in you that made him want to take you into his own company?

Redding: I've kind of always wondered that and don't know for sure, but I think part of that is he saw that I was a young engineer. He saw that I went to Texas A&M, which is a big plus for a lot of these "Aggies" around town. Well, the other thing was at these industry meetings where he had seen me, he knew that I knew a lot of people out in industry. He didn't know how I had actually met these people, or how I was introduced or kept contact with this network that I had, but he knew that people out there knew who I was, and by "word of mouth" was able to deduce that I was somebody worth having, and maybe that I would know enough people to get some more jobs in the door.

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Q: Was there anything about the way you acted, how you presented yourself, the kinds of things you discussed with him that made him take you seriously?

Redding: I don't know if there was anything, I don't remember ever really getting into a good conversation with Harvey other than meeting him and just asking him. I know when I graduated college I'd come back and talk with Harvey, and he had given me a few contacts where to go look for a job, except that they weren't looking for people with my background at the time. They were looking for mechanical people. Then a year down the road, he was calling on me, so I came back and actually was interested in the work.

Q: Can I ask you, Craig, when he offered you a salary, a particular salary, did you negotiate? Did you just say OK? How did the financial aspect of your job come to be?

Redding: I went to lunch with the engineering manager at a place down the road, and we talked about that. I had worked a number in my head, and I knew that I was going to probably have to not take a pay cut, but I wasn't going to make much more money at H.L. Moore. And so, we went to lunch and they kind of pushed on, "Well, how much do you want to make?" And, you know, it's hard to work with something when you don't know what number they're thinking in their heads, so you've got to kind of work with those people to see if you can get them to give you a number first. That way you know what they think you're worth, and they will usually start at a lower number. So, I had worked out some numbers and explained to him what I thought I should be making, and he said that they had thought they'd have to pay me a little more than that. So, we settled on a number in between, and I just negotiated and said, "Well, I'll take a lower number than what you expected to pay me, but in six months you'll look at how I've worked over that period of time, and if I fit in and you guys want to keep me," I said, "I ask that you'd re-evaluate the salary then." And so they did, and it's worked out well.

Q: And they upped it?

Redding: Right.

Q: So you're pretty financially "set" here?

Redding: Oh, absolutely. I actually have started thinking to myself for the past week that I'm making too much money. I make more money now. My dad graduated high school and has worked for UPS and the Teamster's union for 20, almost 28 years, and I'm now two years out of school making a little bit more than he does. And he gets paid well at UPS, so you kind of work with things, and I actually almost think that I'm getting paid too much for what I do -- until I start working weekends and evenings.

Q: Let me ask you this. Let's say three years down the road you're working, your wife's working, you're both doing well, you have a kid. Would you consider taking six months off from your job to be a house-husband with the kid?

Redding: I had actually planned to do something like that. Maybe not six months. Maybe it would be three months. It's tough to do when you get into the project engineering side of things, because if you're an engineering manager, and you've got a lot of responsibility, and you're important to the company, it'd be hard for me to leave H.L. Moore entirely. I'm sure

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there would be a lot of phone calls at the house, and a lot of quick trips back to the office to get something signed, get something approved, or to make a decision or have a short meeting or something, and so it's going to be tough to entirely leave the job for an extended period of time. I would actually plan on leaving the work force. Maybe I could do some of the work at home and just work a reduced number of hours.

Q: How many women work at H.L. Moore?

Redding: We don't have any female engineers. We do have some technical, and then we have a large staff of secretaries now. We've got five secretaries, all women, and then we've got an office administrator, and there's two technical staff. One of them is a sales type, for selling engineering jobs and getting proposals.

Q: So for whatever reason it seems that at least at this company now, women are a support side of the operation, by and large.

Redding: Right. This job is a little different than the last job I had had. Out of 60 people, we had 13 female engineers that worked on staff, and then we had a staff of support, the secretaries.

Q: In general, do you think that in the world of being an engineer, women can advance as quickly as men can?

Redding: I think for women, it's all potential. If they think that they can move up, and they've got the ability to do so, they've got to go out and get that. They can't expect to just be moved up due to experience and things like that. Just like any other man or woman it's independent of sex, race or any other kind of thing. It's ability and potential.

Q: How do you deal with problems that you have on this job, Craig?

Redding: I really haven't had a lot of problems. The only problems, I guess, that I've had to deal with as far as the personnel are the "NDPs", the non-degreed personnel. They think that there's some barrier between them and the way they will progress in their career and the rest of the engineers that work here at H.L. Moore. There really isn't. They work hand-in-hand now. One of the gentlemen started working here, he actually was hired to clean the shop, and now he's working on operability studies, and he's a valuable man in the offshore industry. Not a lot of people know how to run these operability charts. I really haven't had something that I can't deal with for myself, and so I would go to an engineering manager if I did have that, or a vice president, or even Harvey, the owner of the company, Harvey Moore. Walk into his office and just tell him, "I've got a problem." Just be frank with him, and he would be the same.

Q: Tell me, I mean, I'm sure you've done well here. You've been compensated accordingly, people like you. But there must have been a couple of things you felt you did not do well, or as well as you could have. Tell me about how you feel you might have done better, and be specific.

Redding: Well, one of the things I've kind of been sketchy about is just that I'm not a mechanical engineer by background, and so I thought that would be a problem for them. And

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so there have been a few tests that have come up and, you know, when I've got to design the test to work out, maybe I didn't think of something that should have been looked at, that an ordinary mechanical engineer would have done. I haven't really run into any major problems with those designs and things. But I always will go for help. I will go to another engineer and ask for an opinion, or ask for approval or suggestions. I like to get teams together a lot. If I've got a problem, I don't know if I can solve it, but if I get five people in there and we can talk about the problem, somebody's going to have an idea, and if they don't have an idea on how to solve the problem, they may give someone else an idea where they can.

Q: How do you keep up with the changes in the world of engineering, and where do you see yourself 25 years down the road?

Redding: There are a lot of technical journals in the offshore industry and other industries as well that I keep up with. Plastics, mechanical engineering. ASME. There's a wealth of information that comes through, and you meet the other engineers in other disciplines, and you can follow-up and go to monthly dinner meetings, or short courses, to get more information on some of those things. And so, I kind of broaden my background in that sense that I'll go into another industry, I guess, to get some background information through just hearing these people present a technical presentation on that. And in 25 years, as I move up and down, there are two paths that I could take. I can take the technical path where I would return to school and maybe get a PhD and be a researcher, but I really see myself moving up, being a people person, moving up on the project side of things, and eventually as a project manager. In 25 years, I'd like to run my own consulting firm; just myself and maybe a couple of other people, to solve some of the problems that I've gained experience in during those 25 years.

Q: I've noticed that this firm in particular has a lot of international opportunities, worked in China and a number of other countries here. Are you involved in any of that and, if not, would you like to be?

Redding: I'd like to get more involved in China. I've done some work for China just on paper, and I've done some paperwork and engineering design work in India and Oman, and other countries in the Middle East, even for West Africa. I did a major portion in project management on a project in Bermuda too. I wasn't able to go over there for the project length, but probably we will be making a trip there to see how the project is finished up, in the next month-and-a-half or so.

Q: Will you get to go?

Redding: Absolutely.

Q: Have you been in China?

Redding: I have not been in China. Harvey Moore has been in China 17 times; he has made trips over there. And several others that work here at H.L. Moore that have been, when we've set up test facilities.

Q: OK. You've told me that you've worked on projects for China. Do you think, is it of interest for you to go, and if you're an engineer working on a project in a foreign

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country, or at least foreign to us, do you think it would give you any more insight to go there, see the culture, appreciate the differences? How do you feel about the need to travel there as a function of designing the needs of the program there?

Redding: I think it's very important to get the background and the culture of the people. I remember a year or so ago going to a presentation; it was IBM presenting on how they work in Japan. You can't just work the normal workforce you would do here in the United States. There's an entirely different philosophy in Japan, and the way the people work and the way you treat the people, and so it was interesting to me to see that. So, I would think if there were any opportunities for me to follow-up on a job, say, in China, that I would go over and meet the people that would be involved, and spend some time with them to learn their routine, and a little bit more about their culture, because it is important. If you want to work together with someone, you have to know how they think, relative to the project.

Q: By and large, would you say that you're happy in your job?

Redding: Absolutely. My happiness in this job at H.L. Moore is different than some of the other places I've worked, in that they've allowed me a large responsibility on projects. I will go out and propose a project. If I meet someone at a meeting and he's interested in what we do, I'll get him out here, I'll show him around, maybe see if they've got something that we can do for them, and if there is, I will propose the job, give them a cost, and if that goes through and they approve it, then we will go ahead and I will manage the project through. I will do the design and specify which other engineers and craftsmen will be available to work on the project, and I will see the project all the way through in the test lab, and so it's really interesting.

Q: If you were speaking now solely to the young people who are out there studying engineering, mechanical engineering, and you have to give them three things that you think employers today, maybe the three most important things that employers today are looking for, what would you tell them to "sharpen," to be in good shape to seek and get good jobs?

Redding: First of all, I think the most important major professional development skill is communication; the way you talk with people, the way you present yourself, makes a big difference, because when you walk into a room, they don't know how much you know. They see you, and they will infer some things as to your abilities. Second is have confidence in yourself, improve yourself to where you are confident that you can handle what you want to do. Know what you want to do, and have confidence in how you would go about. If you're interested in the offshore industry, gather enough information about work offshore and what's going on so that you could walk into a room filled with CEO's from companies working in the offshore industry and feel comfortable to sit down and talk with these people. Third, just be happy. Work hard, but also play hard. When you get home, don't take the work home with you, and don't bring home the work, necessarily. If you've got problems at home, try not to bring those into the job, and that's true with anything. But when you go home leave the work

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back at the office if you can. If you have to work a little bit at home it's fine, but don't make your life work. You've got to enjoy yourself and the people around you.

Q: Craig, you know what I wanted to ask? Just for the purpose of this video, give me your official title and exactly what you do.

Redding: OK. My official title is Project Engineer. Exactly what I do is, not necessarily "engineer" projects. I take and manage projects. I will take and propose what needs to be done to test a certain product or to finish designing something. I will take and organize the manpower that's necessary to do that, and then we'll see through the end the actual test that we do, or if it's an actual design, see through the fabrication and installation of that particular design.

Q: OK. You touched on the topic about non-degreed personnel. So you work with a lot of different kinds of people.

Redding: Right.

Q: If you could kind of briefly go through, I don't know if it would really be your team, but the people who you interact with on a daily or weekly basis, who help you get the job done, and how important their roles are.

Redding: I've got a kind of different philosophy than a lot of the younger engineers that I work with here, and that I think the most important person in the office is the secretary. The one up front that's going to do a lot of the work here. I won't necessarily write up or type up the report for something. She knows everything that's going on with everybody in the office, including Harvey and the Vice President in Accounting. She knows everybody that's called in. She knows where things are. She's been here longer than anybody else. So I think in any office that's the person that you would treat with the most respect, aside from your co-workers. But the accountant, what basically I would do on a normal day is I will spend some time on the phone with a client, and then I will work together with the secretary to make sure that I can arrange a meeting with them, and then next I would probably move down to Accounting, make sure that the projects that I have worked with, that the budget is OK, and that costing is going OK, make sure the bills are getting paid. We have certain third-party costs that we have to cover in a project. We want to make sure that we pay those on time, but we want to make sure that the client I'm working for is paying us also. And so I'll work with the accountant on getting the budgets worked out, and I'll meet with the engineering manager and vice president, brief them on any new projects, what's going on. If there's any people that need help, or if I need help with other engineers scheduling a project for the future, then I'll go out and make sure that the guys in the lab have plenty to work on. And, if not, if they are working on a specific project for me, making sure that it's being done the way that it was written up to do, and if there is a better way to do something, they'll let me know then, and so we can work around that.

Q: What software do you use, or graphics, or CAD, anything?

Redding: Some of the software at my own desk, I'll use everyday: WordPerfect in writing up letters, correspondence, faxes. QuattroPro is another spreadsheet software. I prefer to use

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Microsoft Excel or Microsoft Word. Once you learn one of those, the rest are fairly similar. It's just learning that one particular one that you've worked with for several years, so that's what you're used to. There are other database programs that I use. There is some specific software that has been written that we do, this visual basic programming. And so those are things that I don't work with every day, but I do know how and will have to do every now and then some programming on my own. I've got, just down the hall, six different machines that I can take and work with and use to make presentations. We'll use CorelDraw and Auto-CAD. I think Release 12 is the latest release that we have that we're working with. And so they can make any of the drawings. And if I'm too busy I'll get one of the draftsmen to do that for me. But I like to get in and do that work also myself, if I've got the time.

Q: Did you learn all these programs, were you exposed to all these in college, or did you learn them on the job?

Redding: A lot of it I was exposed to in college. I wasn't taught in college. A lot of what you learn as far as software is, the night before the project's due, you're working on it through the night, and so you learn the program by trial and error. And I think I learned QuattroPro, Microsoft Excel and Microsoft Word that same way, sitting in the engineering lab and working on the computer until midnight, until I figured out how to work it. But there are several programs that require additional training, and it's just the same way. You'll pick it up here and there in the workday, and when it comes down to it and you've got a little crunch time, you'll learn it then.

Q: OK. And the last thing I just wanted to ask you, Craig. Do you have fun here? Do you have fun on this job, or is it pretty "buttoned-up" here?

Redding: Actually, this job is a little different than the last. The last job I was required to wear a tie every day except Friday. It's kind of relaxed here. And so, when I know I've got meetings and things I will put on a tie like I have today, but most days I've got to interact with the lab. I've got to go out and get my hands dirty. So I'll wear jeans and a short sleeved shirt, so you work comfortably. And if I've got a meeting to go downtown with Shell Oil Company, I'm going to put on the tie. For those guys, it's how you present yourself when you walk into some meetings, or for that kind of activities. But as far as having fun, you can't beat having a job like this here. We break things, so we have a lot of fun doing that. But if it's something tough, if it's a 3-inch piece of steel that we've got to break in half, we've got to design a way to do it. Then we get out there and get to watch it happen. We like to blow things up. We like to pull things apart, and push them until they break.

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