

Oral History Center
The Bancroft Library

University of California
Berkeley, California

Global Mining and Materials Research Oral History Project

Robert C. Freas:
Creativity and Teamwork in the Industrial Minerals Field

Interviews conducted by
Paul Burnett
in 2015

Copyright © 2015 by The Regents of the University of California

Since 1954 the Oral History Center of the Bancroft Library, formerly the Regional Oral History Office, has been interviewing leading participants in or well-placed witnesses to major events in the development of Northern California, the West, and the nation. Oral History is a method of collecting historical information through tape-recorded interviews between a narrator with firsthand knowledge of historically significant events and a well-informed interviewer, with the goal of preserving substantive additions to the historical record. The tape recording is transcribed, lightly edited for continuity and clarity, and reviewed by the interviewee. The corrected manuscript is bound with photographs and illustrative materials and placed in The Bancroft Library at the University of California, Berkeley, and in other research collections for scholarly use. Because it is primary material, oral history is not intended to present the final, verified, or complete narrative of events. It is a spoken account, offered by the interviewee in response to questioning, and as such it is reflective, partisan, deeply involved, and irreplaceable.

All uses of this manuscript are covered by a legal agreement between The Regents of the University of California and Robert C. Freas, dated June 22, 2015. The manuscript is thereby made available for research purposes. All literary rights in the manuscript, including the right to publish, are reserved to The Bancroft Library of the University of California, Berkeley. Excerpts up to 1000 words from this interview may be quoted for publication without seeking permission as long as the use is non-commercial and properly cited.

Requests for permission to quote for publication should be addressed to The Bancroft Library, Head of Public Services, Mail Code 6000, University of California, Berkeley, 94720-6000, and should follow instructions available online at <http://bancroft.berkeley.edu/ROHO/collections/cite.html>

It is recommended that this oral history be cited as follows:

Robert C. Freas, "Robert C. Freas: Creativity and Teamwork in the Industrial Minerals Field" conducted by Paul Burnett in 2015, Oral History Center, The Bancroft Library, University of California, Berkeley, 2015.



Robert C. Freas, 2004

Robert C. (Bob) Freas is President of Industrial Minerals Resource Consultants Inc. (IMRC), Brentwood, TN, a firm he formed upon his retirement as Vice President, Corporate Development for Franklin Industrial Minerals, Nashville, TN. During his tenure with Franklin, Mr. Freas played a key role in growing the firm from two operations and two mineral commodities to eleven operations and seven different minerals. Prior to joining Franklin, Mr. Freas was Director of Operations and Corporate Secretary, Limecrest Corporation, Sparta, NJ. Prior to that, he was Chief Geologist, Dravo Lime Company, Pittsburgh, PA. Mr. Freas has authored over forty professional/technical articles and papers, including publications on both lime and limestone as a scrubber reagent material, and articles on mineral marketing, logistics, and resource development.

Mr. Freas is Past-President of the Board of Trustees of the United Engineers Foundation, Vice Chairman of the Board for the National Mining Hall of Fame and Museum, and a member of the Board of the SME Foundation. Mr. Freas was the 2005 President of the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME), and was the 1994 President of the Society for Mining, Metallurgy and Exploration (SME). He is also a member of several technical and professional organizations including the American Institute of Professional Geologists (AIPG), and the Association of Engineering Geologists (AEG).

Table of Contents—Robert C. Freas

Interview 1: February 17, 2015

Audio file 1

1

Family background in Cleveland, OH — degree in geology at Baldwin Wallace College — MSc at Miami University, OH — civilian service in the Aeronautical Chart and Information Center [ACIC], St. Louis, MO— multiple moves with family while working in construction industry— move to Dravo Corporation in Pittsburgh, PA —beginning new project to build largest underground limestone mine in North America in Maysville, KY, 1973-77— politics of developing a brand-new division, tensions with existing divisions— insulation of core group from management — struggle to meet demand for scrubbing materials (calcium carbonate, magnesium carbonate) for environmental-remediation equipment — creative freedom of being given *carte blanche* to develop the mine — structural naïveté as an incubator of innovation — key support of manager to delegate both authority and responsibility — influence on Mr. Freas’ management style — experience completing Executive MBA at Rutgers University while remaining Director of Operations at Dravo — importance of combining work experience with post-secondary management education — transition to working for Penn Virginia— importance of building credibility as a manager with workforce — building support for company with communities surrounding the operations

Audio file 2

17

environmental regulation stimulates clean-air technology and industrial-minerals industry — need for industrial minerals to clean the effluents of industrial plants (scrubbers) demonstration of technology to clients — initial positive partnerships with environmental agencies — diminishing quality of supply of staff for environmental agencies — growing antagonism between environmental agencies and industry — historically poor public-outreach and education efforts of mining industry — use of extraction processes for environmental remediation— environmental responsibility in the mining and related industries— problem of politicians using mining industry to advance their own agenda — need for credibility of the environmental agencies among those in industry— new nature of recent EPA restrictions on emissions from coal industry, CO₂ vs. sulfur and other pollutants— US consumption compared with newly industrializing nations —definition and structure of the industrial minerals industry— engineering mineral products for specific client applications— importance of customer services to the industrial minerals industry—transition to Franklin Industrial Minerals in 1985— answered a need to manage communication between Sales and Operations— move to Nashville, TN— managed logistics during growth period— became Vice President of Corporate Development to run mergers and acquisitions—Christian faith and risk-taking—sale and divestiture of the company—resignation from Franklin— private consulting— passion for mining

industry and service in related associations—going on mission to Nicaragua,
Kenya—importance of instilling self-esteem and confidence in others

Global Mining and Materials Research Project

For over twenty years, the Regional Oral History Office (ROHO) produced in-depth oral histories of members of the mining community, under a project called "Western Mining in the Twentieth Century," which was overseen by Eleanor and Langan Swent, Douglas Fuerstenau and others. <http://bancroft.berkeley.edu/ROHO/projects/mining/index.html> The 104 interviews in the project covered the history of mining in the American Southwest, Mexico, South America, and Australia from the 1940s until the 1990s.

ROHO has recently changed its name to the Oral History Center of the Bancroft Library, and with that change we proudly announce a new project entitled "Global Mining and Materials Research," which will focus on key transitions in technology, policy, and geopolitics that have brought mining to its current state worldwide.

Much has changed in mining industries in the years since the Western Mining project was in full production, including the increased globalization of mining operations, the decreasing concentration of mineable minerals in ore, increasingly complicated regulatory environments, new systems of environmental remediation, new technology for exploration, extraction, and processing, and new stories of political conflict and resolution. In addition to collecting interviews about mining engineering, metallurgy, and administration, we also hope to explore the history of information technology and data analysis with respect to mining, as well as the legal, regulatory, and policy history of the industries.

This interview was funded with support from the American Institute of Mining Engineers, Metallurgists, and Petroleum Engineers (AIME), the Society for Mining, Metallurgy, and Exploration (SME), the Association for Iron & Steel Technology (AIST), the Minerals, Metals, & Materials Society (TMS), and the Society of Petroleum Engineers (SPE). We are also collaborating with the IEEE to host these oral histories on the Engineering and Technology History Website, located here: http://ethw.org/Oral-History:List_of_all_Oral_Histories. Thanks also to former Western Mining Project Lead Eleanor Swent, Dr. Douglas Fuerstenau, and Noel Kirschenbaum for their advice and support while the Global Mining Project was being established. Finally, we are most grateful to Robert Freas for taking time out of a busy schedule to speak to us about the evolution of the mining industry over the past forty years.

Paul Burnett, Berkeley, CA, 2015

Interview #1 February 17, 2015
[Audio file 1]

01-00:00:00

Burnett: This is Paul Burnett, interviewing Bob Freas for the Global Mining and Materials Research project for the business series at the oral history center, and we're talking today from the SME [Society for Mining, Metallurgy, and Exploration] conference at the convention center in Denver, Colorado. Welcome, Mr. Freas.

01-00:00:28

Freas: Thank you.

01-00:00:28

Burnett: We're glad you could be here. Oh, and this is audio file one. And I did not say the date, either. It's February—

01-00:00:38

Freas: Seventeenth.

01-00:00:39

Burnett: —17, 2015. So, let's begin at the beginning. Can you talk a little bit about your background, and your family, and where you come from?

01-00:00:48

Freas: I was born and raised in Cleveland, Ohio, in a basically blue collar family. My dad was a mail carrier, and then after World War II, he went to school on the GI Bill and got a two-year degree in accounting, and became a cost accountant. But he was non-degreed, in the sense he didn't have a four-year degree. Interestingly enough, when I went on to college, I wanted to go to Michigan State, because where I grew up was in northeastern Ohio, we lived out in the country, and maple syrup was our main cash crop. And I loved being outside, and I loved working in the woods, and Michigan State had a phenomenal forestry program. In fact, the sugar bush that I worked in, which was owned by my friend's dad, did research work in cooperation with Michigan State. Well, lo and behold, I ended up with a scholarship at Baldwin Wallace College in Cleveland, Ohio, and my father said, "Robert—" I knew I was in trouble when I was Robert—"Robert, you will go to Baldwin Wallace, because you're getting paid to school there."

Well, Baldwin Wallace had a three / two program. You go three years at Baldwin Wallace, two years at Duke University, and you ended up with a forestry degree and bachelor's from Baldwin Wallace, and a master's from Duke. Well, while I was going through that program, I took a course in geology, and immediately changed my major. I wanted to be a geologist. I didn't know what branch of geology I wanted to go into. The only thing that I knew was I was going to work outside, end of story. I love the outdoors. To this day, I love to hike and what have you. But I just really enjoyed the outdoors. So at any rate, in college, I changed my major to geology, and my

faculty advisor, who was a very wise man, said, “Bob, if you’re going to get a job in any of the sciences, you’ve got to have a master’s degree.”

So I went on to Miami University in Oxford, Ohio, and got a master of science at Miami. Again, I still didn’t know exactly what I wanted to do in the field of geology. My faculty advisor and most of the folks at Miami ended up in the petroleum industry, but that didn’t really have a lot of appeal to me. When I got out of school with my master’s, the Vietnam War was getting started, so I volunteered for the US Air Force. By then I was married, and we had a little guy. I now have four children and seven grandchildren.

When I volunteered for the Air Force, I got accepted in Officer Candidate School, and they had assigned me a date when I would start in the Air Force and when I would go to basic training and officer’s school. About six weeks before I was supposed to go to school, I got contacted by my recruiter, and they said, “Bob, we’re rescinding your appointment, because things haven’t fired up enough in Vietnam.” It was 1964, and Vietnam hadn’t gotten really going. He said, “Anybody with dependents, and you’ve got two of them,” he said, “is not going to be accepted. We had to turn you down.” So I asked him, “Where would I have gone?” He said because of my background, I would have ended up at the Aeronautical Chart and Information Center [ACIC] in air photo intelligence. So I said, “Do they hire civilians?” And he said, “I don’t know. Why don’t you contact them? Here’s the contact information.” So I contacted ACIC in St. Louis, got a job as a civilian employee of the Air Force, working side by side with lieutenants that had the same background. While I didn’t get to get in the Air Force, I did work for them for two years in air photo intelligence. I enjoyed the work a lot. I love maps.

I could see that at some point, I was going to have to leave this job. I started looking around, looking again in the geologic field, and found a job with the Department of Agriculture with the Soil Conservation Service. That was in cooperation with the Corps of Engineers, doing earth-fill dams, and that kind of thing. So I got into the construction industry as an engineering geologist, and ended up in Lincoln, Nebraska for a couple years; before they transferred me to Harrisburg, Pennsylvania, and finally to Pittsburgh. And in Pittsburgh, I’d been with the government long enough to know that I didn’t want to be a permanent government employee and began to look for other occupational opportunities. [laughter]

01-00:05:35

Burnett:

So, you’ve been moving around a lot with—

01-00:05:37

Freas:

Yes, when we came to Tennessee, it was our eighth state and eleventh location.

01-00:05:41

Burnett:

So, yeah. What’s that like, to have that kind of peripatetic existence?

01-00:05:45

Freas:

Well, most of those moves were made before we had children in school, so that was fairly easy. Our toughest move really was when we went from Pittsburgh to New Jersey when I took over operations for a mining company up there. That was hard, because we had—our oldest son was going into his junior year of high school, and he fought that move. Then when we came to Tennessee from New Jersey, my youngest daughter—I have two younger children, my youngest son was going into the tenth grade, and my daughter was going into her senior year. This wouldn't have been too bad, because her best friend had already graduated, was a year ahead of her. But my daughter learned that the New Jersey schools were much better than the Tennessee schools, and she found she couldn't take any of the classes she was signed up for. So she ended up graduating with a vo-tech degree because that's all she could—she'd taken everything else that they had to offer. Now, Tennessee schools have come a long way since then, I'm happy to say. So when we got done she graduated from a high school, but a lot of her courses were at the vo-tech school.

So when I went with the Soil Conservation Service and was transferred to Pittsburgh, as I said, I started to look around—where else could I go as a geologist? What can I do? Dravo Corporation in Pittsburgh, a very large Fortune 500 Company at that time, was looking for a man to come in who knew rock mechanics and geology, and that's where my background had been. I hired on with Dravo in their research and development group. There was a very entrepreneurial man there who was the head of research. He wasn't a researcher in the true sense of the word; rather, he was a researcher that wanted to take and apply what the research results: develop it as a business. He was more of a business development person than a research person. There were a group of seven of us that worked for him, and we became the nucleus of what became Dravo Lime Company. Dravo Lime Company was brand new out of the box. We were going to develop the largest underground limestone mine in North America, which is in Maysville, Kentucky. It's still going today; it's a very profitable mine although it is now owned and operated by Carmeuse. It's 1600 feet vertically straight down, a very large room and pillar mine, designed to supply stone for the largest lime plant built as a unit—it's not the largest plant in the United States, but at 3,000 tons a day of calcined lime it is the largest lime plant built at one time in the US. This meant that it was going to require approximately 7,000 tons a day—we actually mined 10,000 tons/day of limestone to feed those three kilns.

So that was when I got introduced to mining—I came from the heavy construction side, first air photo intelligence, then heavy construction, and then into the mining industry through Dravo Corporation. And there were seven of us that really were Dravo Lime Company. It was interesting and exciting, because it really was a wonderful environment to work in. The camaraderie—if you can imagine a project where you're one of seven and

you're trying to bring this whole thing alive, and you're starting from scratch with a blank sheet of paper, literally. That was the good news.

The bad news on it was the ultimate and unfortunate impact on Mel [Melville Wilson] Robinson [Junior], who was our boss, he was a very perceptive man, and as I said, quite entrepreneurial. And he insulated us from the corporate politics. He said, "Go do your job. If you get in trouble, call me, and we'll work out where you're at and what's going on." But he said, "I expect every one of you to carry the freight with your job, and you're all to know what everybody else's jobs are so you can cover for them and overlap when and if necessary." And then we were charged with, "Go get it done." It was a phenomenal experience. I count it as one of the highlights of my career, was the seven years we spent building Dravo Lime Company and bringing it to fruition.

The backside of it, as I said before, was the fact that Mel had to insulated us from the politics, and the politics were that Dravo was an international contracting company. They built mines. They built tunnels. They built the Henderson Tunnel, that's out here [west of Denver, CO] which was built for the Molybdenum Corporation of America [Climax Corporation], runs under the continental divide, and is part of the Empire [Colorado] mine complex. So here was this new business unit being developed within Dravo that was operating on its own, getting a lot of press, and was literally in conflict with existing divisions of Dravo, which were doing engineering and design, and construction, and all of these kinds of things, and they had an international presence. And they were really upset that this new business unit wasn't going to use in-house resources and the existing divisions were not going to build the mine in Maysville, Kentucky. They weren't the low bidder. And Mel said, "We're going to do it on an open contract form." And he forced that through the corporate offices. He had enough clout. He was able to do that. Mel paid a price for this effort that again each of us was insulated from.

So we became kind of the black sheep, if you will, of Dravo, because we had a blank sheet of paper; we were spending more money than anybody had ever spent at Dravo before. If you imagine, this is the early- to mid-1970s; it was an \$85 million capital project. That's a lot of money in the 1970s. Today, you talk about billions of dollars, but for Dravo, that was the kind of order of magnitude we were looking at. And as things worked out, Dravo Lime prospered. It was interesting. I experienced something in 1977: September 21, 1977 we dedicated the mine and the lime plant, and turned it over to the operating people. My emotions at that point were identical to the other six guys that I had worked with: that was our baby. That was my mine, and to turn it over—I wasn't about to give it over to somebody else! That's my mine! And we all felt the same—because none of us were involved in the operation of it. We were all experiencing a sort of separation anxiety—we turned it over to the operating group. Well, as things work out, we were involved with it. I mean, I was responsible for, the overall geology but not the day-to-day

geology, and I was responsible for the roof mechanics, those kinds of things, as the mine developed. But it was a real emotional torment for us to turn this mine over to these operating people, because we had eaten, breathed, slept—I mean, it was the focus of our lives, practically, at that point in time. My wife said, “I think sometimes you love Dravo more than you love me.” [laughter] It was that kind of a project. Fortunately, I’ve had the chance, now twice in my life—this sounds weird—twice in my life, I’ve birthed a mine. It is an incredibly satisfying feeling to know that you’ve been able, from the very beginning, to the time that it’s drawn to conclusion, and men actually have jobs there, and they’re going to work there, and it’s in production. To be able to do that and be part of that not once, but to do it twice, what a phenomenal experience. It gives you a sense of satisfaction that you’ve completed something that’s really worthwhile. It’s got sustainability for it for a while.

01-00:13:55

Burnett:

Sure, sure. What’s really interesting—many interesting things in that story. I mean, people talk about innovation, and where innovation comes from, right? They talk about, there are studies about limits to the size of a group: you want to keep it small. There’s something about large companies. So could you talk a little bit about—I don’t know how much you learned from the person who started the project, but what the thinking was behind creating this small group that would do this kind of work.

01-00:14:35

Freas:

It kind of developed almost by accident. Again, we were part of the Research and Development group. I came on board with Dravo in 1973. In 1971, the federal government passed the clean air standards, the first of the clean air standards. And it was becoming obvious that the utility industry was going to have to scrub the stack gases, take the sulfur out of stack gases of coal fired electric generating plants. So Dravo, being a mechanically-oriented company—and we had companies or divisions that built grates; we built locks and dams. We were a construction company. We were a production company. And Dravo said, great. We’ll make scrubbers! So they began to work with their design engineering groups about how to make a scrubber. What’s it got to do? What’s it got to look like? We’d done chemical plants, so we knew how to do chemistry stuff. And what Dravo found out was everybody and their cousin that was in that kind of business was also trying to build scrubbers, but nobody was looking at what goes in the scrubber. So we had a research chemist by the name of Joe {Selmeczi?}. Joe was just a marvelously innovative, imaginative type of guy, and he began to do work on, basically, stack gas liquors and scrubber liquors, if you will. We began looking at the chemistry of scrubber liquors. And what the research department found was that instead of using a pure, high-calcium lime to go into a scrubber liquor, that if it had 5 or 6 percent magnesium carbonate, it could increase the solubility of the stone in the liquor, if you will, and at a higher stoichiometry in the scrubber liquor, you could avoid a lot of the scale buildup that was happening in conventional scrubbers. They patented the whole thing and

called it thiosorbic lime, which means sulfur-absorbent. Mel sold it to the utility industry—so we began to look for a limestone deposit. It so happened that Alpha Portland Cement had a very large deposit that they had never drilled, never developed, and they were willing to sell. So we drilled it and found out that it had 5 to 6 percent natural magnesium carbonate in it, and was exactly what we needed. We're going to go develop Maysville, which is how Maysville came about. But at any rate, the long and the short of it was that—and this exacerbated the whole political thing within Dravo, was that when we dedicated the plant, in 1977, the plant was sold out. That had never happened before within Dravo. In fact, we were buying lime and supplying commercial lime—

01-00:17:43
Burnett:

To cover?

01-00:17:44
Freas:

—to cover our contracts until we got up and running. And here was this group of people. You ask about how did we do as a group, and the small group dynamics, the interesting part of that, Paul, is that *none* of us had a mining background. Not one of us. There was an electrical engineer, there was a mechanical engineer. I'm the geologist. All of us were on a learning curve. I mean, our learning curve was nearly straight up. But because we had a blank sheet of paper, and we were enthused with the opportunity, all learning, we *talked*, and we communicated with each other every day, multiple times a day. It became a matter of you were working with six of your closest friends. There was no politics, there was no animosity, there was no jealousy. There was nothing negative between us. We were working together; we were a team, we had joint ownership of an idea. And everybody came to it the same way. Mel had done a marvelous job of melding personalities, I guess that's the best way to put it.

So we came together, and we were all faced with the same limitation: none of us had mining degrees; none of us had been in the mining industry. And so we're learning. Well, the great part about learning in that kind of environment was we weren't afraid to look at new technology. We weren't afraid of looking and doing something different, because we'd never done it the old way before. And as a consequence, we looked at equipment that Dravo had never used before in any of their construction process. We talked to people like Wagner Scooptram "What's the biggest Scooptram you can make for us? And we'll design around it." The mine, as we designed it, had some innovations. Yes, we got professional help, in terms of mine engineering and the design of the mine, but we were using outside people, because they bid better than what the people did that were within Dravo Corporation. Again, part of the animosity that built within the organization.

But we weren't afraid to look at something new, and I think that was part of the success of the whole project, was the fact that we had a common goal, we

had a common objective, and we had a common—how should I put it? We were all neophytes. We had a common “neophytism,” if you will. So we were all in the same learning curve. We had good outside consultation, in terms of the people we worked with Kennedy Van-Saun or KVS, in terms of the kiln. Now they’re part of somebody else. All of these companies go away over time. So we were working with very, very qualified, competent people on the kiln design side of it. We were working with qualified design engineering people on the mine side of it, in terms of mine design. Dravo Lime was really a contractor. They weren’t a mine designer; they were a contractor. They would build it: give me the plans, I’ll build it, kind of thing.

01-00:20:50

Burnett:

An engineering company, effectively.

01-00:20:52

Freas:

I mean, yeah, exactly. So we were using an outside engineering firm that really was a mining contracting firm, and they said, “Boy, if you’re going to go with this kind of volume, you need to do this and this, and maybe instead of taking all this rock outside and crushing it, you need to crush it underground.” And we began to look at how can we do things differently than what’s done, and we literally had a brand new piece of ground that had never been mined before. There wasn’t a mine there that we had to work around. It was, drive the shaft, drive the slope, select the equipment. And we all were involved in it. We all went to different mines and looked at the equipment, but we did it together so we’d all learn together. It was *exciting*, it was fun. I mean, I didn’t mind. I’d go to work an hour early and stay two hours late. I never even thought about it. Later on, at other places that I worked, we’d have coffee breaks—you’re looking at seven guys, we never took breaks. We would walk down the hall to see how what we were doing would mesh with someone else’s work, there was no socializing. We wanted to know about, what were you doing on this project? What do you think about this? We were so fired up, and so enthusiastic. And imagine, for seven years, we’re like this. It wasn’t seven years, it was four—I’m sorry. It took seven years from the original conception, because I came on board when we were starting to do the land acquisition. So it was actually ’73 to ’77, so that would be four years. But for four years, we were like this. We just didn’t goof off. There wasn’t time for that.

01-00:22:27

Burnett:

Right. Right. Well, they say that for workers to be satisfied, there needs to be a creative dimension, that they can have their own input. And it sounds like what you were doing was every day you were creating.

01-00:22:44

Freas:

We were, and one of the interesting—you asked about dynamics. Here’s one of the interesting things that I’ve never seen before. As I said, Mel Robinson was the head of research, and we were all doing this out of the research center. Where Dravo Lime was, at the research center. Mel had so much confidence

in each one of us that he called us his boys, his team, whatever. And he would call us into his office when we were at a decision point, and he'd say, "Okay. Give me your opinions. What do you think?" We'd each give him opinions. He said, "We're going to take a vote." And he said, "I don't want anybody to be influenced by what I think." And we'd all write on a piece of paper and put it in a paper cup. And he'd count the votes afterwards, and he would go by what the vote was. Well, we had one vote one day. Mel was clearly—he wanted to go in this direction. And all seven of us said, "That's not the way to go. We need to go this way." And he got outvoted seven to one. Mel took his vote and threw it in the basket, and he said, "Guys, you outvoted me. I guess we've got to go your way." Instead of, like a lot of men would do, or a lot of bosses do, and say, "Well, we're still going to go my way, because I'm the boss." He went with what—he demonstrated he had the kind of confidence in us to do that. He vested us with the authority, as well as the responsibility to get the job done. You can't have only one part of it. I've seen so many organizations that the guys, the men and women that work for them are just totally frustrated. They've got the responsibility; they've got absolutely zero authority. That doesn't work.

01-00:24:24

Burnett:

Right. Right. It's maddening.

01-00:24:27

Freas:

It doesn't work.

01-00:24:27

Burnett:

It's absolutely maddening. Yes. Yeah, I agree. So it was a really positive management style.

01-00:24:33

Freas:

It was a wonderful management style. In fact, it had a tremendous impact on me personally, because as I moved from being Chief Geologist for Dravo Lime, and moved into other aspects of my career, I took that as a model that I wanted to follow. I ended up—several years later, I ended up as Vice President of Sales and Marketing for Franklin Industrial Minerals, where I spent twenty-three years. We were a privately owned company with a very dynamic, very involved owner who would not take no for an answer, and he wanted results now kind of thing. Nice guy, but extremely demanding. I told my people, "You do your jobs. You've got the responsibility, you've got the authority. This is what it is." We'd talk on an almost daily basis, but I had nine guys stretched all over the United States working in different areas. We'd talk by phone or whatever. This is the standard I gave them—if you have a question, you call me. Let me know what you think, what you need—do not withhold information. I don't want any secrets. I want to know what's going on. And you work for me, you get the job done. I will insulate you from our owner. My job is to keep him informed, and to keep you protected to the point that you can work, you can do your jobs.

And that's the way that I operated as a Vice President of Sales and Marketing. And I learned it way back at Dravo. If I'm hiring the right guys to be my salesmen out in the field, then I've got to have enough faith in them to get their job done and do it right, and not make a sale to a company for 20,000 tons of X, and we can't produce that, or we can't do it at the cost at which he sold it for. So I made sure that they knew what the cost was. I wanted my people—I would hire a new man, and I would put him in the plant that he was most responsible for. And I said, "You work for two weeks on the production side." I'd talk to the plant manager and say, "I want him trained. I want him to know what you can do and what you can't do." So they would have a big contract coming along that they had a chance to bid on, they'd call the plant manager, "Hey, Jack, can we do this? This is what I'm bidding on. Can we give him 20,000 tons a month for this particular product?" And my job: I kept them isolated from our corporate politics, if you will. Not that there was anything wrong with our corporate management, but they didn't need to be part of that. They needed to be doing their job. So the Dravo experience had a tremendous impact on how I managed later in my career.

01-00:27:16

Burnett:

And you stand by that management style? Because—

01-00:27:19

Freas:

I love it and I believe in it.

01-00:27:19

Burnett:

—you learned new things about management later. We can talk about that in a while, but you did an MBA, or took MBA courses as part of a program. Did your experience—was that consonant with the teaching that you—with the coursework that you did?

01-00:27:40

Freas:

In 1980, when I left Dravo, Dravo was clearly going down for a variety of reasons. It was in the—I left in 1980, so about 1979 to about 1984, Dravo was in a decline. There was an economic downturn, and Dravo corporately had made some decisions which unfortunately didn't work out for them, and ultimately Dravo no longer existed. I was being recruited by Penn Virginia Corporation, and I went to Penn Virginia in New Jersey. Initially, I wasn't director of operations, but I ultimately became director of operations. I was running a two quarry, two-plant operation, and my operating philosophy that I'd developed from Dravo was exactly how I operated with my people, even though I'm talking about production format and not a construction or development environment. And it worked well for me.

As time went on—I realized after doing this for three years that I had no business background. I had a solid technical background. I'd taken every science course I could get my hands on when I was in college, but I had no business courses. And now I'm responsible for budgets, and I'm responsible for profit and loss, and all this kind of thing. It's like, "I've got to do

something different here.” And I went to Rutgers under an executive MBA program, and—some of the things, and some of the ideas I brought to the class were a little different, but it was interesting because Rutgers, it was a different kind of an MBA program. Being in the New York metropolitan area, their school of management and business is in Newark, not on the main campus in New Brunswick. Our concrete campus: we had trees, but they were in pots. It was an intensive program: you went for two years. You took a full load, as if you were a fulltime student. We went to school alternate Fridays and Saturdays. It was a fantastic experience; I don’t ever want to do it again. [laughs] It was a two-year hell week. [laughs]

01-00:30:02

Burnett: Yeah. And you maintained some responsibilities—

01-00:30:05

Freas: I was Director of Operations. [laughter]

01-00:30:08

Burnett: You remained in full responsibility?

01-00:30:09

Freas: Yeah. But when we got to Rutgers—just to give you an example, we were all given the vita of every person in the class. And I looked at the vita, and I said, What in the—what am I doing here? How did I get accepted? As with most executive MBA programs, you’ve got to have a week of residency. We would have a week residency on the main campus in New Brunswick, but we were isolated from the regular day students. We got our first month and a half of school in the week of residency. So it was intense. There were no study halls. You went 8:00 in the morning until 6:00 at night, and two days a week you came back at 8:00 and until 9:30, you were in class. My roommate was the chief financial officer and controller for the New York Times Corporation. The guy I sat next to in the classroom was the chief general counsel for Research-Cottrell, who had just gone through Three Mile Island disaster.

And you looked at these people that we had—we had thirty-three in our class. Twenty-two of them had—myself included—had advanced degrees. We all had master’s degrees. We had a doctor who wanted to start a clinic with other doctors, so he wanted the business background on what he needed to know. We had seven women in our class. Six of them had been divorced because their husbands couldn’t keep up with them and they got in conflict with their marriages because they were such dynamic women that their husbands couldn’t stay with them. One of the gals was the Assistant Director of the Environmental Protection Agency for the state of New Jersey. One of them was the head nurse for a 1,000-bed hospital in Philadelphia. These were not dumb girls. [laughs]

01-00:32:08

Burnett: Right, right, right. It was a high-powered group.

01-00:32:11

Freas:

It was a high-powered group. Like I said, I looked at the vita; I said, I'm not qualified to be part of this organization, this group. And it was interesting, because as we would look at things and study things during the course of the class, several of us—because we already were managers or had been managers—we managed differently than the textbook suggested or outlined. And Rutgers, to their credit, brought in the best and brightest of their faculty to teach us. They brought in outside people. The guy that taught us macroeconomics was a vice president of Chase Manhattan Bank, and he was only part-time faculty. But he came over across from New York City and taught us. The guy that taught us labor law was a federal arbiter. They brought in the best they could get for us. We actually interviewed professors, and we would say, “We'll take this one; we don't want that one,” kind of thing. These guys would be nervous coming in to interview our class. [laughter] It really was a great program. And because we were working with people that had a minimum of ten years experience—you couldn't get in the program without ten years experience, and most of us had more than ten years experience—we challenged our professors. They'd say something—

I remember one of the guys in our class who ended up as being president of one of the big pharmaceutical companies in New Jersey, standing up in class—The professor had said something, he was going on, and Harry slammed his fist on the table and he stood up, and he says, “That's a crock.” Now how many undergraduates are going to do that in a class? [laughs] It just stopped—there was dead silence in the class.

01-00:34:00

Burnett:

A little awkward. [laughs]

01-00:34:01

Freas:

And the professor looked, and the guys that were in sales and marketing—I wasn't there yet, I hadn't been in that part—they say, “Yeah. Harry's right. You can't do it that way.” And so it was a marvelous experience as we went through it.

01-00:34:20

Burnett:

Yeah. A real baptism by fire.

01-00:34:23

Freas:

It really was. And the flip side of that was that you felt that because you were part of that group, you had to perform up to expectations. There was a tremendous amount of unspoken peer pressure. It wasn't peer pressure like you have in a class as an undergraduate. The peer pressure was there because, I'm with these people and I don't want to embarrass myself. I don't want to be the village idiot in this class. So I just got a tremendous amount out of it. In fact, I ended up hiring a couple of my professors to do work for me at Penn Virginia as consultants when I finished their classes. So it was a great experience. But again, all the way along, I was working for a corporation. It

was headquartered in Philadelphia. I'm in northern New Jersey. I had the freedom to run things the way I wanted to run things, the way I felt they ought to be done. And the only time I really got questioned very much was if you didn't hit your bottom-line numbers: well, why didn't you hit them? Which is a logical and valid question in the process. But nobody questioned the management style as we went with it. That was a company that had been in business since the early 1900s. There wasn't much change for innovation at that point in time. I mean, you were working with what's there. You don't get to—

01-00:35:46

Burnett:

Right, right. Well, that's actually quite a striking contrast to what you did before at Dravo.

01-00:35:50

Freas:

Yes. Very much so.

01-00:35:52

Burnett:

You were isolated from sclerosis, and bureaucracy, and those things, and so you now have entered a management space that is somewhat path-dependent, right? It's dependent on where things have been in the past.

01-00:36:09

Freas:

It was that, and it was the fact that—Penn Virginia Corporation is a closed-end fund, basically, and they are owned—there is stock in circulation, you can buy stock in them. But the vast majority of stock was owned by Main Line families in Philadelphia. So it was one of these kind of closed-end funds that was designed to generate income and lots of it. They owned lots of coal properties, and there was royalties off of that. Oil and gas properties. And then two or three operating companies, like where I was at with Limecrest in North Jersey. And so as a consequence, all of the corporate people in Philadelphia were financial types. They had no engineering, no operating experience. Everything was bottom line. So it was, as you said, a totally different experience from what I'd had when I was with Dravo. And probably a good experience, because I had a different kind of exposure. Again, a public company, but a totally different kind of experience from what I'd had previously.

01-00:37:15

Burnett:

And the 1980s is the sort of grand period of the M&As, and the financialization of American capitalism, if you will. So there's a lot of that going on, and that might have been difficult for someone in operations, where costs can be relatively fixed. If this is a closed-end fund, as you said, how did you manage that? How did you handle that?

01-00:37:48

Freas:

I had to come—again, I had no financial background, so—other than what little bit I got at Dravo. We were doing some mergers, but I was doing technical evaluation. I wasn't doing the financial evaluation. Penn Virginia

was doing acquisitions, and again, I got involved on the technical side, and I did a lot of due diligence with them on that. But when it came down to it, you're looking at the balance sheet. I had to spend time looking at the numbers we were generating, and boy was I a neophyte.

Fortunately, the good news is my dad having been a cost accountant. In addition to his day job, he had a lot of little meat markets, and curtain shops, and stuff, and I would go with him from the time I was thirteen, fourteen years old. And these people would have cigar boxes full of receipts, and all this kind of thing. And my dad had these big accounting sheets. You know, they didn't have computers at that time. They had to be big spreadsheets. And I was doing double-entry bookkeeping before I knew what double-entry bookkeeping was. Because I would take all the receipts, and I'd classify them as what they were, and I'm writing down all this stuff. And my dad would do the accounting after that. But I was doing double-entry bookkeeping from the time I was thirteen, fourteen years old. I didn't know that's what it was. But now I'm using this stuff, and I realize what it is.

I came to the reality of what is fixed cost, what is variable cost. I had never thought about fixed and variable cost before. So when I'm starting to look at it from an operating standpoint, and I'm looking at fixed versus variable, all of the sudden I was faced with the reality that operating cost—people cost, your employee cost—is really a fixed cost as a unit of production. As long as you're in this unit of production, it goes steady state. Then you hire another person, and that cost went up one step, and it stays steady state again. So the variable cost in there was the overtime cost. And those were some of the lessons I was having to learn on the fly, kind of semi-teaching myself, which is why I said, oh, man, I got to get to business school. And why I went then, and enrolled. I got the approval of Penn Virginia, and they paid for it, and I was able to go on to business school. But getting back to your question, as I began to encounter these things and I tried to use intuitive thinking, if you will, and previous experience to put them together, I had to get more business courses. Hence going to back to school for the MBA.

01-00:40:28

Burnett:

Right. Right. And so you completed the MBA over a course of two years, I guess. It was—

01-00:40:36

Freas:

19—I started in—

01-00:40:38

Burnett:

'82?

01-00:40:39

Freas:

—1982, in the fall of '82, and graduated—interestingly enough, every one of us was there for graduation. There wasn't one of us going to miss graduation. And we were all there, and graduated as a group in May of 1984.

01-00:40:55

Burnett: Same kind of intensive cohort.

01-00:40:58

Freas:

Oh, we had bonded as a group. You have little groups, little islands if you will, but not really. We were a group—you could sit down at lunch with this group or that group. We had a funny experience one day: the dean of Rutgers University came out to Newark one Saturday afternoon, and he said—he took five of us at random—he said, “I want to take you five guys to lunch.” There was one gal and four guys. He said, “I want to talk to you about the MBA program.” This was funny. He took us out to lunch, and he says, “You guys are busting your chops.” And it was a new program. The executive MBA program was only three years old at Rutgers at this time. He said, “You guys are really busting your chops to get this thing done.” He said, “What motivates somebody to do this?” A couple of fellows, maybe the gal, gave a couple of answers. I had always been kind of an irascible person, and he said to me, “Bob, what moves you to this?” And I said—mind, you, when I’d been with Dravo, they hired a lot of freshman MBAs that had no brains at all. They had a degree, but they had no walking sense.

So any rate, the dean, he says, “What do you think, Bob? Why did you go to school?” And I said, “Dean, you know, I’ve got this friend. He says, ‘When you go to MBA school, the first thing they do is put you through this machine and it strips you of all your common sense.’” And I said, “I always wondered what the machine looked like.” [laughter] And he looked at me, and he said, “What? What are you talking about?” And I told him about my experience at Dravo. I said, “We hired all these brand-new, freshly-minted MBAs,” and I said, “They couldn’t pound sand in a rat hole. They had no experience whatsoever. They couldn’t relate the operating environment to the classroom environment and all these things that they’d learned.” I said, “One of the things that makes this program function at Rutgers,” I was serious now. I said to him, “It was because you don’t let us get in here until we’ve got ten years of experience.” I said, “An MBA for someone coming straight out of business school with a bachelor’s degree is worthless.” And I said, “I believe that today.” I’m seventy-four years old; I believe it today. You’ve got to have experience before you get your MBA.

01-00:43:39

Burnett:

Well, it’s so interesting that engineering programs have these elaborate work-study programs. From the time you’re in your first year, you’re spending your summers with a company. And you’re learning during your undergraduate. And I know there are probably MBA programs like that now, and executive MBAs are of course like that. But the undergraduate business degree doesn’t seem to have that as much. So it’s a—

01-00:44:06

Freas:

No, it doesn’t. But again, at least within the engineering community—and I don’t know how it is with mechanical engineers, electrical. I’ve never been

there. But within the mining community, and within the mining industry, you've got to have experience in combination with what you're learning so that it makes sense. I mean, you're putting your hands on it, you're feeling it, you're experiencing as it goes. You're working with enormous pieces of equipment in an environment that is inherently not safe. In order to be able to learn how to function in that environment safely and productively, you've got to have that beginning experience. You can't bring a student with no experience, but now he's got a bachelor's degree in mining engineering, and put him in as a shift supervisor. He or she is not going to have any respect. But if that person has already been in that mine for three summers, and has built a certain level of credibility. You know, it's no different. And I don't care whether it's mining, or you're making plastics, or whatever it may be.

When you're in a supervisor role, you're a supervisor, you're a foreman—you're the big boss. You've got to have credibility. And you get credibility on the working floor, when they see what you have done. They want to know where did you come from. And that makes a tremendous amount of difference. I've been just intensely aware of the fact that you've got to establish credibility along the way. So I think these work-study programs are marvelous. I've encouraged my grandchildren. I say, "Don't work at McDonald's. Go get a job. I don't care if you can make more money at McDonald's than you can being a survey crew, just a rodman on a survey crew." I said, "You get the engineering experience. Get that experience. That's vital."

01-00:46:14
Burnett:

And having credibility with communities, because that's not even in a supervisory role, but everything is social. And you need to have—

01-00:46:20
Freas:

Well, and it's interesting you say that, because what's happened—and I'm maybe jumping ahead from where you want to be, but you struck a hot button with me. [laughs]

01-00:46:29
Burnett:

Okay. That's good. That's good.

01-00:46:32
Freas:

Before we started this interview, we talked about what are the things you've seen that have changed in the career over the time. You know, when I started in this industry, gee, back in 1973 or thereabouts, you had to have permits. You had to have a permit to operate. You had to have a permit to do this. And we still have to have permits, and we go to the agencies, and we get permits. But that's not enough anymore. When you go to the keynote session we had Monday morning, you sit down and talk with people—and it doesn't have to be at the CEO level. You talk with folks in this industry, we have to have a license to operate. That's not a piece of paper. That's a community acceptance. And if you're going to have a license to operate in that community—and I don't care if it's in Brentwood, Tennessee or whether it's someplace in

Indonesia, you've got to have a license to operate. And that license is granted you based on the credibility you have as a company, you as a manager, if you're the manager of that company. You've got to have your people in that community. They've got to see that you're part of them. And that you're not going to destroy the environment that you're in, that you're not going to destroy their economy. And in fact, by your very presence, that there is something the community is getting back.

Example of that, because Dravo was ahead of their time in that particular area: when we did Maysville, Kentucky, Dravo asked—Maysville had a historical commission and they were building a new museum, because there's a lot of Indian architecture, and culture, and stuff there. They asked Dravo for a contribution, and Dravo made a contribution, but they did more than that. They asked me, "Would you make a contact with the museum? And we want you to help them with their geology exhibit. We want you to help them set this up." There were three or four of us, actually, that ended up working with the museum. "Hey, what do you need in the way of artifacts? We've got some artifacts on our site." We brought some artifacts to their place. I helped them with a geology exhibit. And we did that kind of thing.

And then Mel Robinson said, "The community needs to know that we have a presence here. That we're spending money in their stores," or whatever. So, our name was Dravo Lime Company—l-i-m-e for lime, calcined lime. What did we do? We got lime-green signs, this big, on the side of every pickup truck we had, so when we're in town, Dravo Lime is all over town. You see those trucks. We all were given lime-green jackets, and on the back in big white letters: Dravo Lime Company. Everywhere we went, they saw us in the store. They saw us in the hardware store, the grocery store: hey, wow. These people have an impact. Look how many of them there are here shopping. And we gave that to every one of our hourly employees, when we got up into the operating side of things: every employee had a lime green jacket. And you know, it's kind of like the military does when they use three-dollar bills. You see the three-dollar bills: hey, man, the military is part of our economy. Or, two-dollar bills, whatever. I guess it's two-dollar, not three-dollar: two-dollar bills.

01-00:49:56

Burnett:

Yeah, no. It sounds essential. This is with hindsight, but—

01-00:50:04

Freas:

Yeah. But we do, we talk about having a license to operate. It's not a piece of paper. It's a credibility that you developed in your community. And you've got to have that. And that's a big change that's happened in our industry, worldwide.

01-00:50:20

Burnett:

Yeah. Yeah. And it seems like during the time—when you started, that is right at the time – and the very purpose of the mine that you designed with your team at Dravo was to develop products to meet environmental standards.

01-00:50:49

Freas:

It was.

01-00:50:49

Burnett:

And so this is—you're entering your field at this time, and so in our next session, maybe we could talk a little bit about the larger social and political—

01-00:51:01

Freas:

Okay.

01-00:51:01

Burnett:

—context surrounding the work that you were doing.

01-00:51:04

Freas:

Mm-hmm.

[Audio file 2]

01-00:51:04

Burnett:

This is audio file two. And I was thinking about the impact of environmental legislation in the 1970s, and this shaped your career a little bit. And it's an interesting case, where environmental regulation actually stimulated demand for a mine.

01-00:51:34

Freas:

Yes, it did. Obviously, as I said before, with the passage of the new air standards, the clean air standards in 1971, that really generated a new market, if you will, for both lime and limestone. In fact, at that point in time, when you were looking at new scrubber technology, there were about three or four different kinds of scrubbers depending on what kind of reagent material you wanted that would develop in the process. So you could have a wet limestone scrubber, you could have a wet lime scrubber, you could have a dry lime scrubber. You didn't have a dry limestone scrubber, but you could have a dry lime scrubber. Or there were some alternate technologies such as using nahcolite, or some other minerals, in the process. And there was also fluidized bed combustion, which at that point in time was for small industrial boilers. For instance, a university might have their own power plant. They might use a fluidized bed, where you would literally—when you say fluidize, you're forcing air up through the fuel. So you have coal that's in suspension, if you will, or floating on a bed of air. And you mix the limestone in it, so that the limestone is literally being calcined, if you will, during the time that the coal is being burned. So in the off gases, you've got this calcium coming off and

intermingling with the sulfurs in the air, and as a consequence, you get a clean air technology. That was one of the clean air technologies.

And then you're looking at—but on a bigger scale. Because utilities were the big issue with the new clean air standards. Was whether you were going to wet scrub or you're going to dry scrub. That, interestingly enough, was one of the areas where I ended up making some impressions—and I think it's because of my own personality, more than anything else—with our sales group, that I began to be involved in a little bit of sales and marketing along the way. Hey, I like to talk. I love people. Our sales guy had a lot of sales experience, but he didn't have a lot of—he'd sold for chemical companies, but he didn't have a lot of experience in terms of what we were doing. We were in front of a client this one time making a presentation. And I'd asked him, I'd said, "Why don't we take a Pepto-Bismol, just a little—" Or, not—Alka-Seltzer, I'm sorry. "—Alka-Seltzer tablet with us." And we're making this presentation to this customer, and I said—and I had kind of taken the lead in the conversation. And we had a couple of glasses of water. Everybody had a glass of water. It was in a glass. And I took two of the glasses of water, and I put them in front of me, and I said, "Here's why you need to buy our product."

I took the Alka-Seltzer, I said, "What happens when you put lime in water?" Lime has a violent chemical reaction with water, because it has a great affinity for water, and you'll have a temperature increase of 30, or 40, or 50, 60 degrees in a minute or less. So you have this great temperature gradient. It's an exothermic reaction. And the Alka-Seltzer, I mean, just bubbles up. It looks like it's doing something. I said, "This is Alka-Seltzer, but this is what happens. Lime gets involved chemically with what's going." I said, "What happens when you put limestone into—" And I had a rock with me. I put it in, I said, "You get a wet rock." The customer said, "I hadn't thought about that." And my salesman looked at me afterwards, and he said, "Where did you come up with that?" I said, "I don't know. It was just there." [laughter] But it was one of those things. And as a consequence, I started making more and more sales presentations with our folks along the way.

But that gets away from the question you asked about the environmental thing. The environmental regulations were creating a market, but the bigger picture was that if you remember, it was, what, in the late sixties when we had our first Earth Day, and so it was kind of in that period that the general populace of the United States was beginning to become more aware of environmental concerns. I took a class in ecology as an undergraduate. So I took this ecology class probably—I graduated college in 1962, so I probably took this class in 1961. There were four of us in the ecology class. Now you can't get into an ecology class. You have to sign up well in advance and be an upperclassman to get in. So the whole mantra, if you will, of the public's image of environmentalists—well, environmentalism—and I'm not trying to be critical of the environmental organizations, but the whole thing is everything is like a

pendulum. It goes from no knowledge all the way over to the other side of the spectrum, as you go with it.

And what we've seen over the years is people started going to work for environmental agencies, and the environmental agencies were working with industries. They'd partner with you, and you were working together. And the people that came into that had a passion for that environmental work that they were doing. They had good solid backgrounds, whether they were in chemistry, or whatever it may be, they came into that. And as they worked with industry, we developed partnerships, and we worked together. How do you reclaim the lime better? I grew up in the eastern part of the United States, and we had a lot of acid mine drainage from the coal mines. How do you water treat that? How do you clean up those waters, so fish can survive in those streams? And the coal industry was working with the environmental agencies, the Pennsylvania Department of Environmental Protection was a very proactive organization working with those organizations.

Fast forward. What's unfortunately happened is as we've gone on, the agencies have grown. And as agencies grow, you have to populate them. And you don't have the best and the brightest, necessarily, in those agencies anymore. I'm not trying to knock any one of those agencies, but what happens is just the natural dilution effect, because what happens? The guy who comes in, or the gal who comes in to that environmental agency, whether it's Colorado EPA [Environmental Protection Agency] or Pennsylvania EPA, or whatever, if they're really, really sharp, somebody outside's going to be looking for them. Somebody is going to be recruiting them. And so what happens is these agencies lose the best people they've got. And now you've got a young man or a young woman who is very idealistic in terms of what's going on in the environmental world with a great deal more authority than they have any idea that they've got talking to people who've got twenty years experience in an industry, and telling them they've got to operate this way. What's—the natural outgrowth of that is we've gone from the point where you had a partnership developing, and you were working together to make things better, to the point that we've got all the way over to the side where it was a purely adversarial relationship between that permitting agency and the industry that they were regulating. We've come back from that some distance, but we still have a ways to go.

01-00:59:36
Burnett:

When was the worst period for that for you, in your experience?

01-00:59:40
Freas:

In my experience—golly. Probably during the [William Jefferson] Clinton years. And it's not necessarily because it was Democrat, but it was during that period of time. And it could be just because of where I was geographically located, and the people we were working with. And what happened is you just had to watch everything you said when you were with any one of them. You

had to be very careful what you—you had to make sure that you had a—well, I mean, we never had an environmental officer. Every company I've worked with since then, we've had an environmental specialist—and the agency guys come in, he works with the environmental guy. He doesn't even work with the president of the company, or the director of operations, or anything else. Because he knows the language he's got to use. He knows the right words that he's got to say. He knows his regulations A, B, C, D, etc. So it's unfortunate. We don't need to be in that adversarial relationship. Unfortunately, right now, with the Mine Safety and Health Administration, we're badly in that direction, but that's a political thing, because the political environment we're in right at this moment in time, regulatory agencies are being used as a stick to beat us with. As opposed to working with us. Good, bad, or otherwise, that's a fact. That's the way life is, okay? We need to be getting ourselves back closer to the point where we're working on a cooperative relationship.

The other thing that happened during that period of time is you have a lot of environmental organizations which have become advocacy organizations. Their influence has grown over the years. And I have to be careful how I say this, because I don't want to be throwing rocks at anybody, but the reality is as a nation, as a people—you've got to take the cross section of the United States, whether we're talking people twenty years old, thirty years old, seventy years old. If you look at the population of the United States, we're basically scientifically illiterate, unless you work in one of sciences, or one of the engineering fields, or medical fields, or whatever. We're basically scientifically illiterate as a people. And as a consequence, it's easy to be manipulated. So if an environmental organization, because they need to raise funds, is less than totally objective in the information they present, they become very sophisticated at selling a particular theme, or a particular idea.

The converse of that is the mining industry—and I can't speak for any of the other industries, chemical or otherwise—we've done a very poor job of telling our story. So as the proactive environmental organizations developed more sophistication, more knowledge, they're selling their story over here, and their story has clearly got a bent toward their side of the story. Our story is real small over here. We haven't done a very good job of telling it. Hence we've got our foundation, SME Foundation, where we're trying to do a better job of educating the public through schools and whatever. So that we as an industry have had to learn how to tell our story, and do it with the same kind of sophistication and appeal that these other organizations have had for years. Is that a knock on these? No. They're doing what they naturally are going to do. It's a knock on ourselves, because we didn't learn faster. You go to the webpage of any one of the big mining companies now, even your construction aggregate people. You don't have to be talking about a new mine or mining company, or Caterpillar, or Barrick. You can be talking about Vulcan Materials, or Martin Marietta, and these others across the board—big companies, little companies. If they've got a webpage, they almost always

have an education page. Let's educate the public. And they have linkage on it to connect people to valid information.

So, yeah, whatever that organization may be that you've got that's been an advocacy organization, as they've gone that way, now they have to come back to meet this other. So hopefully we're coming closer to the middle ground here somewhere along the line, because the middle ground is where we, as an industry, have had to learn that you've got to make compromises. You can't have everything the way you want it to be. You've got to make compromises. Because, as I said before, when we talked in that other session, we've got to have a social license to operate. That means we sacrifice some dollars on the bottom line to make a community better. To make our presence better known. At the same time, the advocacy organization—and it doesn't have to be a US organization. It can be Canadian; it can be Indonesian, Chinese, for that matter. The Chinese are now learning this kind of thing. They're behind us on that, but they're learning. Those organizations have got to come back. There's some accountability.

There was a stretch of time where nobody held the environmental advocacy groups feet to the fire for accountability. Just as we were being called to accountability for acid mine drainage, or reclamation, or whatever it may be, if you're distorting the facts on this side and there's no accountability, you can distort them all day long. But now that we're coming back, and telling a story, and we're getting into the schools, and we're doing—maybe we need to back off over here, and come back and find that middle ground. I'd love to see the point—and we're seeing it. We're seeing where you're getting cooperative efforts between industry, and environmental organizations, and environmental agencies. You're seeing where they're coming together to find common ground on specific projects. Where they say, okay, we'll spend this over here as a company to meet this goal that you've got over there, and you'll accept over here the fact that, yeah, we're going to disturb the ground for twenty-five years, but we're going to reclaim it when we're all finished. Look what we've done. This is—and again, look at what we've done is a valid statement, if in fact you've done it right in the past. But you've got to be able to walk your talk.

So as I said just a few minutes ago: I see things as a pendulum. They go both directions, back and forth. And the pendulum can be very much on the side of industry group, whatever that industry group may be, all the way over to the side where you've got—what's the word? Environmental extremists, if you will.

01-01:05:59
Burnett:

The deep ecologists?

01-01:07:00

Freas:

Yeah, I mean, the guys that—they're out there hugging trees, you know. [laughs] But whatever it may be. But there are people in those organizations who have a good understanding of the practicalities of coming together. I think the bottom—they've got a bottom line as well. When they look at fundraising, they can sell a story that'll raise funds, but in fact they'll sell a story where we can work together, you get fringe groups on both ends. But if we can work together, they're going to have better success raising funds from a community that says, hey, they did good work. They helped create jobs, because they didn't just block this project. They didn't just say no. But we work together to develop something that's better for our whole community. It's better for our whole community not because we don't have a big pit over here for twenty years, but because we've got the economic benefit, and we've got the reality of knowing that that big pit is not going to make the quality of our lives deteriorate. And it'll be something other than a big pit some day.

01-01:08:16

Burnett:

And you seem to be saying that the environmental activism over the long run has shaped mining practice in a positive way? The mining expertise has been devoted towards developing safer, more environmentally-neutral, and less impactful mines.

01-01:08:39

Freas:

It has, and as I said before, if you look at the mining company staffs, smaller mining companies may have somebody that's a health, safety, and environment guy, because it covers all of those things together. Whereas, you go to a larger organization like any one of our big copper companies or our big gold companies, they've got—not only do they have environmental—yeah, they've got their health and safety people over here. That's another ball game altogether by itself. But they've got their environmental teams who handle the permitting, and they handle the negotiations and work with those environmental agencies, and NGOs [Non-Governmental Organizations], if you will, wherever they may be, to develop the project together. You see companies like—and I can't say this for Barrick specifically, but let me use them as an example, Barrick Gold—that have groups within their employment that are working on growing plants on various kinds of soils. What's the best plant for us to be raising on this kind of a mine tailing? How do we best vegetate this tailing? What kind of irrigation? You know, if we have spray irrigation where you've got a humidity of 10 percent, you're not going to put very much water on those plants. But can we use drip irrigation, or subsurface irrigation? And it comes back, it's the same kind of technology that we turn around. When I say we: industry wide, not us in industrial minerals. But it's the same kind of technology that might be used in a heap-leaching operation. So that you're putting fluids in the ground to extract, chemically extract, certain elements of metals from tailings. Well, you can use that same kind of—in a very general way—but the same general kind of technology to sub-irrigate, if you will, grasses, or trees, or whatever else is that you're going to

get out there on that environment. And Caterpillar's been a great leader in the field of environment—

01-01:10:41

Burnett: Caterpillar?

01-01:10:43

Freas: Yeah.

01-01:10:44

Burnett: Wow.

01-01:10:44

Freas: Why not?

01-01:10:45

Burnett: Right. An excavation company.

01-01:10:46

Freas: If that mine doesn't go, they don't sell the equipment.

01-01:10:48

Burnett: Right, right. Yeah.

01-01:10:50

Freas: So Caterpillar talks a lot about environmental concerns—and they've got their own environmental people. You know, their environmental people are looking at scrubbers on their engines: how do we make our emissions from our engines lower or less noxious—but they have people that work with others in that area, and they've been a great environmental advocate. They've presented some super videos to go out to school kids that talk about the environmentalism in terms of how the mining industry approaches environmentalism. Are they growing the plants? No, they're not growing plants over here, like somebody else might, but at the same time, they've partnered with their customers, which are the mining companies, and trying to get that message out of what the environmentalism is all about. You cannot operate today in an environment where you operate in a vacuum—that doesn't work. You've got to be a partner with your community. That is an enormous change from when I started in my career.

You had companies that understood this—yes, you absolutely had companies that did—you know what those companies were? They were the moms and pops. They were the folks that lived in that community. Those mom and pop operations, they show up—they don't want to go in the grocery store to have somebody say, "You snake." That's not how they want to go. They want to go to church on a Sunday morning and be accepted as part of their community. And so they took responsibility for what they're doing. Well, that mom-and-pop responsibility now has gravitated upwards to the corporation level, where we have to have that license to operate. We have to be part of the community.

We have to have that credibility. That's an enormous change that's happened during my career, to see that happen as we've gone along.

01-01:12:44

Burnett: When do you think was the high point of collaboration with the EPA, or state—

01-01:12:50

Freas: I don't think it's been reached. I don't think it's been reached.

01-01:12:53

Burnett: Well, you mentioned that at first, they were working to—mining companies and regulatory agencies were working together to craft reasonable legislation, and that it went off the rails at a certain point.

01-01:13:10

Freas: It did, but—and it's coming back to some degree. Depends on which aspect of it you're looking at. You've got a couple of things at play that skew that whole ballgame, irrespective of what intent is over here, okay? One of those is politics, obviously. If this administration over here happens to be pro-business and they want their agencies working with business, that's great. If this administration over here says no, we're anti-business, we see business as being that big bad guy that fouls the environment, then they're going to use the agencies as a whip against you. So there's a certain amount of that that comes in. Now, I grant you that those people that are within those agencies are going to—they're going to do their job irrespective of what administration's in place. But it's the senior people in those agencies that set the pattern, that set, this is what our priorities are. This is where we're going to go. So each administration does have some amount of influence on that.

But again, coming back to when's the high point: the fact is that the agency people have also gone through some learning curves: how do we get credibility with you people? You know, nobody likes to be disliked. And they've gone through that. They've seen what it's like to be accepted in a very negative manner, because when they walk in the plant, nobody's going to talk to them, they get dirty looks from the hourly employees, because you're messing up my job. That's not the way they want to come on the plant site. So they've been the recipients of some pretty negative looks, some pretty negative comments that are—You and I are hourly employees, and the inspector's walking along here. My back's to him, and I say to you in a stage whisper, "Oh, that jerk from MSHA's [Mine Safety and Health Administration] here again." [laughs] I mean, that goes on!

01-01:15:37

Burnett: Yeah. Hostility.

01-01:15:39

Freas: There's a hostility. And nobody wants to work in that environment. So the people are going to make the change. But you have that going on as well as

the fact that you've got—you do have politics. You can't get around the politics that are in it.

01-01:15:54

Burnett:

Right. Right. Yeah, it seems like—the story that I've read, and talked to some people about, is that when the EPA first started regulating the industry, that nobody knew what a reasonable threshold was for X.

01-01:16:12

Freas:

Right.

01-01:16:13

Burnett:

And so they had to kind of—there was a learning process on both sides, and that worked for a while to sort of determine the limits. What can the practical limit be?—if you say there's a zero threshold for this, then the mine can't operate. Okay, well, what can we then do to have an acceptable limit on X?

01-01:16:32

Freas:

And that's part of the whole reason for having public hearings, and having a period of time when the regulation, their proposed regulations are vetted, and have a chance for industry and other agencies to come back and talk about them. And that's healthy. What's not healthy is when an agency proposes something because of political motivation and they make an extremely short vetting period, or they just completely ignore all the comments: we're going ahead with this, because this is our political agenda to go here. And that's not just this current administration. It's administrations up and down the board.

01-01:17:18

Burnett:

Well, I want to ask one more question about that that's directly related to your expertise in scrubbers, because recently there's a new set of policy guidelines, or regulations, in fact, on the coal-mining industry, to reduce emissions by 30 percent in the next twenty or so years.

01-01:17:39

Freas:

There's a difference, because the scrubber legislation was really aimed as much as anything on acid rain, so you were trying to get the sulfurs and the particulates: the visible plume, you were getting the particulates out of the air and you were getting the sulfur gases out of the air to reduce acid rain, or the impacts of acid rain along the way. What you're talking about now is a different thing altogether, because now we're talking about lead and mercury, but that's not really the big issue. The big issue is CO₂. What are you going to do with carbon emissions? Well, there's quite a debate whether or not all of the hype on global warming is right or wrong. Is it valid or is not valid. And are the regulations—and the regulations the coal companies are being faced with right now, and the recent EPA edicts that have come out, have all been oriented toward carbon emissions. That's a totally different animal than the sulfur gases, and the particulate matters that we were looking at in the seventies.

01-01:18:45

Burnett: So, not air pollution, but a recent reclassification of carbon emissions as a kind of pollutant.

01-01:18:51

Freas: As a pollutant.

01-01:18:52

Burnett: Which it wasn't before.

01-01:18:53

Freas: It wasn't before. It was never even considered as a pollutant. Now carbon is considered as a pollutant, regulatable pollutant. Or regulatory pollutant. So what you're looking at is a completely different scenario from what you were looking at in the seventies when we talked about scrubbers and we talked about the sulfur emissions. It's an apples and oranges game.

01-01:19:21

Burnett: Right. Okay. Because it sounds like the administration wants to strongly encourage the replacement of coal plants, instead of incremental—because it's analogous to the kind of work you were doing was facilitating adjustments to existing operations, but this is policy that's geared to getting rid of older plants.

01-01:19:49

Freas: It's geared to getting rid of carbon-based pollutants, if you will. And if I can be so bold as to say so, what you've got is—and we talked about it before. My example, again, of the pendulum. The current administration we have is way over on this side in terms of environmental extremism. They are not scientifically astute people. They are going with the most stringent regulations they can come up with, because they see the whole thing in that perspective. We've got to bring that back to where there's some common ground between us. The coal industry and the utility industry can't have those kind of regulations. We don't have technology in place that can hit those regulations. So by virtue of that means that you get rid of those whole—well, you know what? What, 40, 50 percent of—I don't know what the specific percentage is, but 40, 50 percent of our energy, our electricity, is still generated by coal.

01-01:20:59

Burnett: I think it's 50, yeah.

01-01:21:00

Freas: Yeah. And as a consequence, we can't get rid of all the coal fired electric generating plants—you're not going to replace that with windmills. And if you're not allowed to permit—or if it's just cost-prohibitive to permit a nuclear plant, what are you going to replace it with? You can't do it all with oil and natural gas.

01-01:21:18

Burnett:

A lot of the calls these days are for—because countries, and more broadly, civilizations, change their energy mix quite slowly. It takes a really long time to change, you know, the transition from coal to oil was very long, was many, many decades.

01-01:21:40

Freas:

Well, let me give you an example of what we're talking about in terms of some of the political things, and this isn't just the [Barack Hussein] Obama Administration. It goes back further than that. When you looked at the Kyoto Protocols that were called for, and the Kyoto Treaties, and all these kinds of things we were supposed to look at, one of the things those treaties and protocols did, and as far as I know still do, was exempt emerging nations, i.e. India and China. Were you at the keynote session on Monday?

01-01:22:15

Burnett:

No, no.

01-01:22:17

Freas:

There was a graph put up on the board, or a chart that was shown up on the board, of how many billions of tons of coal are burned in the United States to generate electricity. If I remember, the number was 13 billion tons a year to generate electricity. In China, it was 200 times that. In India, it was five times that. Like, 67 or 68 billion tons of coal. It was more than millions. It must have been billions. But at any rate, the countries that were being exempted are anywhere from five times to 200 times more emissions coming from them than there is from the United States.¹ They're exempt from the regulation and we're not. I got a problem with that. [laughs] I'm sorry, Mr. Politician, but there's something wrong with this picture.

01-01:23:14

Burnett:

Right. And the argument used to be that the developed, industrialized nations needed to be leaders in order to—they have to walk the walk and make those changes first, unilaterally, otherwise those countries won't follow suit, but given the pace of industrialization in China and India, especially in China, it's hard to—yeah, it's difficult to see it that way.

01-01:23:42

Freas:

[laughs] Yeah, exactly. It's not—now, you're not talking apples and or—you're talking apples and onions! [laughs]

¹ According to the US Energy Information Administration, total coal consumption for all uses in the United States in 2012 was 889 million short tons of coal, whereas coal consumption in India and China was 744 million and 3.89 billion short tons during the same year.

<http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=1&pid=1&aid=2> Accessed on 5/18/2015

01-01:23:51

Burnett:

So we could continue to talk about that stuff for a long time, but I do want to get a sense of the larger picture of your career. And I would also like you to speak a little bit in general about industrial minerals as an industry, and the ways in which it's distinct from hard rock precious metals mining and coal mining, energy mining.

01-01:24:23

Freas:

Well, if you look at minerals, the minerals industry in general, as SME looks at minerals, you've got energy minerals: coal, oil, gas. Oil and gas, they're minerals. So you've got the energy minerals. Uranium, if you will. And you've got the—we call them the hard rock minerals: the copper, zinc, the metallic, iron ore, gold. Certainly you can break that down: precious metals and commodity minerals, like iron ore, if you will, or whatever. Go whatever way you want to go with that. But when you come back to it, then you're left with industrial minerals. Industrial minerals are totally different from them, and let me take a couple of examples. If I'm a coal company—and I hope my friends with the coal industry won't throw too many rocks at this, but you're selling BTUs [British Thermal Units]. You've got X amount of BTUs that you're producing, and if you're the buyer of these BTUs over here, I can sell them to you. Would you like to have them in big lumps, little lumps, or medium-size lumps? What size lump of the BTUs would you like to have them in? I mean, that's what the coal industry does. They may clean up their coal, because they put it through a prep plant, all kinds of other things, but they're selling lumps of coal. Mr. Copper Company, what are you selling? You're selling copper plates, or ingots of copper. What do you see coming out of the aluminum sale? Ingots of aluminum. So those industries are basically—and I put this in a general form. They do work with their customers to produce things for their customers, but that's kind of a secondary consideration to what they're doing.

When you start talking about industrial minerals, you're talking about an industry that is engineering, producing engineered products for their customer application. Now, with that said, you've got to recognize that industrial minerals—we're called soft rock, because we're not near as hard as the other stuff. But it breaks into two kind of categories: we're lower-volume minerals until you start to look at fertilizers, pot ash, phosphorus, sulfur. Those are industrial minerals, but they're large-volume commodity minerals. Again, you're probably just selling: you're selling a chemical grade in a size that will work in their application. Certainly in a fertilizer, they've got to have a certain particulate size in order to be able for the chemistry to work with them. So you're working with—but when you look at the rest of the industrial minerals, you start looking at the talc, and mica, calcium carbonate, and even silica sands, and other things, we as industrial minerals producers have to engineer our products for an end-use application.

I mentioned earlier that I'd been vice president of sales and marketing for Franklin. I would go in with our technical people to our customers' plants. We'd look at their operation. We'd sit down with their people. How do we make our products work better for you? And we would make specific-sized products for them. Now, we sold a lot of limestone to the glass industry, and we tried to get them to come to common specs. And within limits, we were able to get most of the glass company to come to common specs, because we were making a product specific for the glass industry. We would do selective mining within our deposit so that we could have very high purity, for clear glass, as opposed to beer bottles.

01-01:28:30

Burnett:

So it sounds almost like batch production.

01-01:28:32

Freas:

You did a certain amount of that. A better example of an engineered product: we also owned a ball clay company, and we produced—most of your ball clay in the US comes from Tennessee, Mississippi, or Texas. Ball clay is a clay that is literally, because it's got so much plasticity to it, it balls up when you mold it—so it's called ball clay. But ball clay has a very important function, as opposed—it performs totally differently than kaolin clays or some of these others. If you're going to make—let's say you're going to make a big platter. You're a china company. You're going to make a big platter. All right. That meat platter, or turkey platter, whatever you're going to have, has got a lot of surface area with a very little footprint. And what you're concerned about if you're the ceramic producer that's making that platter is when I've got that raw clay formed to make my platter, how do I keep it from having the lips on the ends fall over and droop before I fire it? Well, you put ball clay in because it's stiff, and it gives you the structure you want. The biggest industry that uses ball clay is the commode industry, producing toilets. I mean, here's a huge ceramic body. Can you imagine if it just slumped when you made it? Your average toilet is like 35 to 40 percent ball clay that's in there to hold its shape until it's fired.

All right. So you're selling ball clays for a variety of different manufacturers, for a variety of different—whether it's china production or something else. The company I worked for—and this is common to the other clay companies—we had a clay mineralogist working for us, and he would go out with—we drilled out the deposits, and even me as a geologist, it looked like a lot of clay. And, yeah, that's a little lighter gray, little darker gray, and whatever. But he looked at it in terms of its ceramic-forming properties, if you will. Because he's a clay mineralogist. And when we would mine it, we would mine these individual horizons of clay, and each one had a name. Jason would name each one of these as we went. And when we would bring them in to a clay barn, we'd stack it here, and stack it here, and stack it here, and stack it here. So you had all the—we had twenty-nine different clays that we would mine. And for this ceramic company over here, it might be American

Ceramics, whatever, whatever. They'd say, okay, the formula for this is two scoops from that pile, one scoop from this pile, one scoop from this pile, and we'd take the clay and blend it. And we'd make different blends of clay for every single customer. So industrial minerals is literally an engineered product that's manufactured for a specific end use.

You go down to the aggregate side of things, we make aggregates that meet state specifications for a variety of different sizes, you go through it. But even within that realm, there are products that might be cleaned, they might be washed, in the case of aggregates that are going to go into—bridge deck concrete. So there will be a certain amount of engineering even at the aggregate level, as to what—yeah, it's a low-value, high-volume product, but they're going to make the products that are demanded in their specific area to that end use. So industrial minerals are much more sensitive to the end-use application than most of your energy minerals. Your energy minerals are measured on BTU, and then you may be measured on ash content or other things. But it's basically BTUs—oil, gas, coal. You're measured on the metal side of things in terms of the purity of the metal that you get out. And we're measured on purity, but we're measured on purity, and we're measured on size. And even in the limestone industry and ground calcium carbonate, we may surface-treat with stearates or other things to make our product perform better in a plastic application, or a paper application, or—the kaolin people do the same thing. There was a technical session yesterday afternoon on oil field proppants. One of the fellows who was involved in the program is from Imerys, which is a kaolin clay company. What do they do? They make engineered kaolins for the proppant industry so that they will have the properties you want in an oil-field environment.

So industrial minerals are uniquely different, in the sense that we sell ours by tons. So does—the coal people sell by tons. But these metals guys over here, they sell on how many ounces. You know, they get so many dollars per ounce, or so many dollars per pound. We don't have that luxury. We're selling it on dollars per ton, but at the same time, those tonnage prices work around the specifics of the end-use application. Probably the most stringent of those applications comes when you're talking about food and pharmaceutical products. When you get into those kinds of products, you have to work to what they call a Codex standard, and you have to certify that you meet certain USP [United States Pharmacopeia] or Codex standards as you go with it. And I know we sold mica to Maybelline. Maybelline paid through the nose for it. But the reality was our exposure—the potential liabilities when you sell a product to Maybelline and some lady starts having—or all the ladies starts having a rash or an itch, because of the mica in their cosmetics—you've got lawsuits that won't quit.

01-01:35:00

Burnett:

That was the original horror story that was the impetus behind the adjustment of the Food and Drug Act in 1938, is because mascara caused a bunch of women to go blind.

01-01:35:16

Freas:

Yeah. So you're taking on a significant liability when you engineer a product to make it for some of these applications. So you may not sell very much of that, but you're going to sell it at a pretty good price, because you're accepting a certain degree of liability with that.

01-01:35:35

Burnett:

Absolutely. So it sounds like client services is a bigger part of—

01-01:35:44

Freas:

Customer services are a critical part of the industrial minerals world. And again, I don't mean to cast—

01-01:35:56

Burnett:

Aspersions.

01-01:35:57

Freas:

Yeah, there you go. Aspersions on—I'm going brain dead here—on my friends in either the metallics or the coal industry, but we as an industry, the industrial minerals industry, we are much closer to our client. Our customers in that—our operating people are in their plants. Their plant people are in our plants. The quality control guy at any one of the industrial mineral plants is in direct contact with the quality control guy over here, whoever that customer may be. Because we have to produce a product that's going to satisfy their end-use application. Unlike the copper ingot that's over here, we're going directly into an end-use application. That copper ingot may go into somebody's plant that is going to manufacture wire, or something else along the way. And they don't have any direct—except that maybe they sell an awful lot to the wire company, so yeah, you've got a relationship that you build, because you've got a relationship—it's a relationship business. But it's much more so in industrial minerals, because you've got to know the people on an intimate basis in terms of how they're going to use your products, what they're going to use them for.

01-01:37:26

Burnett:

Absolutely. And it also sounds a little bit like materials science.

01-01:37:33

Freas:

Yeah, there's certainly some of that involved, yeah.

01-01:37:35

Burnett:

You're engineering the product. You might have not just a single mineral but a compound. You might have—you're bringing together a couple of different elements in various percentages.

01-01:37:56

Freas:

Yeah. So you might have a calcium stearate that you're putting on your product. But whether you're Franklin, or Imerys, or any one of the companies that are selling calcium carbonate, which is of course where I spent the majority of my career, was calcium carbonate. We all had R and D [research and development] guys. He may be a PhD, that's dealing with these people over here to try to help our people engineer a product for their end use.

01-01:38:26

Burnett:

Well thank you. That's a great introduction to this general world that you inhabited for so long. And so now I think we can zero in a bit on Franklin Industrial Minerals, and some of the work that you were doing. You became a Vice President of Corporate Development. Is that immediately?

01-01:38:53

Freas:

No. I was recruited—again, by the fellow that I mentioned earlier—Franklin Industrial Minerals was a privately-owned company. It was the first and only non-public company that I worked for. The fellow that recruited me I had known through SME for a long, long time, and Ben said, “Bob, I need you to come to Tennessee.” I'm up in New Jersey. My wife is from Wisconsin, and we had never lived south of the Mason-Dixon in our entire lives. I told Ben. I said, “Look. You and I have been friends for a long time. I owe you the courtesy of coming down and seeing what you've got. But Ben, I'm not going south.” So I went down. It was the first weekend in March, 1985. Saw what they had, visited with the owner, went out to the owner's house. He had a lot of questions. He didn't know me from Adam, so he wanted to know a little bit about me, one thing and another. Ben says, “All right, here's the job we've got for you. I want to offer you a job.” He said, “Let me know.” So I got back to Jersey and I called Ben. I says, “Ben, I just don't—I don't see us going south of the Mason-Dixon. That just isn't going to work.” I said, “We're life-long Yankees. We don't belong in your country down there.” I said, “I'm Big 10 country. I grew up in Big 10 country, my wife grew up in Big 10 country.” I said, SEC's [Southeastern Conference] the enemy. [laughs] I made three interviews, three trips to Tennessee before I finally was convinced that I needed to come to Tennessee.

What happened, and what Franklin needed, was Ben knew that I had a strong operations and technical background. And this is where a little bit SME comes into play. I've been a member of SME since 1973, and one of the things that happened, when I joined SME, I was asked to give a paper at a couple of sessions, and as things worked out, I ended up giving one or two papers every year. I didn't do two papers in the same session, but at one point, SME used to have two meetings a year. So I would give papers at the meetings. Because of what I was doing, they were taking on an increasingly market focus, and less technical focus, just by virtue of what I was doing, and the kinds of papers I was presenting. I knew Ben through it. He sat through almost every one of my papers that I gave as we were going along with this. So through the networking contact, Ben knew that I was going to school, getting my MBA.

He knew that I was director of operations. He knew that I was getting more involved on the marketing side, because we had four different product lines at Penn Virginia, or at Limecrest. One of them was in the industrial products area. We had no salesmen for that, so in the process of being director of operations, I picked up the sales responsibility for our industrial customers, because nobody spoke industrial or technical. So at any rate, Ben knows all of this stuff, and it's why he called, and had contacted me. Because Franklin had a problem. They only had two plants at the time: one in Texas and one in Tennessee. He said—and this is really what sold me. He said, “Bob, I've got to get you down here.” He said, “I have to have somebody who can talk operations and talk sales, because our operating people and our sales people are not talking to each other at all. There's a war.” He said, “I need somebody to step in to stop the war, that can bring the two pieces together.” So I ultimately took the job. Penn Virginia was getting ready to promote me and move me to Philadelphia, which—I really didn't want to go to Philadelphia.

01-01:43:18
Burnett:

Not in those days, then.

01-01:43:19
Freas:

Well, their offices were in the heart of downtown Philadelphia, and it was even more expensive to live there than where we lived in North Jersey, because we were rural. It was gorgeous. It was the prettiest location we've ever had.

01-01:43:30
Burnett:

Near what town, was it?

01-01:43:32
Freas:

Sparta. We were in Sussex County, which is the northern most county. You know where New Jersey comes to a point, we were in that county that comes up to the point. We were literally fifteen miles from the Appalachian Trail. Most people don't know the Appalachian Trail actually goes through North Jersey, but we were fifteen miles from the Appalachian Trail. It was totally rural where we were at. Fantastic. I mean, I lived three miles from the plant; I had two stop signs. [laughter]

01-01:43:58
Burnett:

Yes. So, downtown Philly, I can see, would be a bit of a—

01-01:44:00
Freas:

I had no interest in going to downtown Philadelphia. [laughter] Because, reality was, where could I afford to buy a home, either it was going to be in the city or it was going to be a suburb so far away I had an hour commute, and I didn't want that. So rather than come to Philadelphia and be part of the corporate Penn Virginia, they wanted somebody to take over all of their lime and limestone operations, because they were in the lime business as well. They wanted somebody to kind of be the overseer of their whole lime and

limestone business unit. Would have meant more money for me than I made going to Franklin, but it wasn't a job that I wanted.

01-01:44:38

Burnett:

Yeah. And that's what mattered.

01-01:44:40

Freas:

Yeah. I thought I would enjoy the work more with Franklin. Although I had trepidations, not only about going to Tennessee, because it was a different culture, but also because I really wasn't sure I wanted to be in sales and marketing full time. That was going to be a whole new venue for me. From the standpoint of moving to Tennessee, it was difficult in the sense that we had two kids in college already, so that part wasn't so hard, but my oldest daughter was going into her senior year, so we had some questions about moving. And the youngest son was going to be a sophomore. That worked out okay. I mean, it wasn't the best environment. But my wife had a really, really hard time making the adjustment, because in 1985, Nashville was a different city than it is today. Northerners were definitely Yankees, and we were definitely from the north—people referred—my wife would get so mad. I mean, the hackles on the back of her neck would get—somebody call her a Yankee. “Oh, you're the Yankees.” We moved into the community of Brentwood, which is about fifteen miles south of downtown Nashville. Twelve, fifteen miles. And it's essentially a professional community. Little more upscale. We liked the schools there, we thought that would be the better schools. Wrong. [laughs] They're good schools now, but they weren't then. But any rate. So we moved in there, and we went to a party one night. It was kind of a neighborhood party. We lived in a subdivision that had about 300 homes. Brentwood has got one-acre zoning, so we had at least one acre of ground. It was a pretty good size subdivision when you get 300 homes. But any rate, we go to this party and we start meeting people. And the guy from Detroit, this one over here, they moved here from Cleveland. Our next-door neighbor was from Alabama, but there were very few people from the South. Almost everybody we ran into was from the North, had been transplants like ourselves. And my wife asks this one—in fact, it was our host at the party, was a doctor. And she said, “I don't understand. Why is everybody from the North?” And he said, “Oh, Judy,” he says, “You haven't been here long enough to learn about Brentwood.” She said, “What about Brentwood?” He said, “It's a Yankee ghetto.” [laughs]

01-01:47:22

Burnett:

Oh, no. Hopefully she laughed.

01-01:47:26

Freas:

Yeah, she did. She did. But Nashville has changed. Nashville is a marvelous city. I love living in Nashville. It's alive. We've got professional sports; I'm a hockey fan. We're first in the National Hockey League right now. Nashville Predators.

01-01:47:43

Burnett: It's Vanderbilt [University], right?

01-01:47:44

Freas: Vanderbilt. There's sixteen colleges and universities in the greater metro area. It's an educational center. I mean, I could go on like the chamber of commerce for Nashville. It's a neat place, and it's become a very, very cosmopolitan city. And it's not Yankee vs. Old South kind of thing. It's really amalgamated. And it's happened because there's been a variety of industries that have come in. I mean, we're the headquarters for Nissan North America. GM [General Motors] brought a big plant down there. We're the largest Saturn plant in the country, is there. Nashville is called Music City, USA, but we're also a major manufacturing center. We're a transportation hub. It's the state capital. It's a huge medical center.

01-01:48:29

Burnett: Yeah. Pharmaceuticals.

01-01:48:30

Freas: You've got medical people coming from all over the country. And as a consequence, you've got a city that is not Yankeetown, Yankee versus the South anymore. We're all Nashvillans, Tennesseans.

01-01:48:41

Burnett: It's the New South.

01-01:48:43

Freas: It's the New South. That's a good way to put it. We've been there now thirty years, and we're very, very happy. We're not going to go anywhere else. We're going to stay in Tennessee. Although my wife would like to go back to Wisconsin, that's not going to happen. I don't want their winters. I can't handle the winters. [laughter] So any rate, we came down to Franklin, and Ben had asked me, he wanted me to do this kind of thing. It didn't take very long. They just didn't know how to talk to each other; they didn't understand each other. But even though I was from the North, one of the odd things that had happened was having gone to Rutgers—because they all knew my background. Now, when I say they all, I'm talking about the plant managers and the salespeople, predominantly. They thought Rutgers was an Ivy League school, so I must be pretty smart, because I went to Rutgers. [laughs] Honest to God.

01-01:49:38

Burnett: It's a great school.

01-01:49:40

Freas: It's a great school but it's not an Ivy League school. But any rate, I had some credibility walking in the door, because I could walk through the plant, and I knew what the equipment was. I knew what it was used for. I didn't have much sales experience. I had to learn a lot on that side of it, but I had pretty good people skills. I mean, I'm a people person.

01-01:50:00

Burnett:

I was going to say, yeah. It seems like that's the kind of management style that you have. You're a kind of—you're a broker, you like to bring people together.

01-01:50:08

Freas:

Yeah. We use the term, we learned it in B-School, at Rutgers, a gatekeeper. And I ended up kind of being a gatekeeper, if you will, in terms of making connections. The great thing about SME has been networking. I had a host, a network of people that I could bring to bear. We had some issues with some dryers in one of the plants, and I had a guy who was just a phenomenal guy in pyroprocessing, and I had Jeff come in and do some work for us. And our plant manager said, "Wow." He said, "I don't know where you found him, but he is really good." That builds your credibility in the process as you go with it. So any rate, we begin to get things running, and going the way they're supposed to go, one thing and another. And our owner wants to grow the company. And he says, "Well, Bob," he says, "You know a lot of people out there. What should we be doing? Or where do we go?" And so I began working directly with the president of the company. The President was different than the owner. The president was my boss. He knew a lot of the companies I knew out there, but he wasn't an aggressive—he was a very, very good manager, but he was not an aggressive acquisition person. And I'd been involved with acquisitions at Dravo. I'd been involved with Penn Virginia. And we began to look at acquisition, and we specifically targeted some companies.

The owner was a very astute businessman, and he could play real hardball when it came to negotiations and stuff like that. And I didn't have to do that kind of stuff. It's a private company, he's doing the negotiations. But I did a lot of the liaison, the communications, the connections. Bringing people to the table, doing the due diligence on both the technical side as well as the sales and marketing. So I would be looking at their marketing, and I'd also be looking at their geologic reports. So we're doing that. And we grew Franklin from two plants—actually, it was one and a half, because one was halfway up, and got going, and we got it up to full speed. We grew it from two plants that were doing construction aggregates, which was our byproduct, and ground calcium carbonate, to the point that we had eleven plants at one point. We sold off some of them along the way, but we had eleven plants, and had grown our portfolio to nine different mineral products. I can't take full credit for that. It was a team effort. We did it all the way together. But again, I functioned in the role of a gatekeeper, if you will. A networker, bringing people together.

Well, as we grew, it became apparent that my role in the company really needed to change, and so we brought in a guy who really was a salesman to head up the sales group. Initially, I kept the marketing and all of the logistics. He knew nothing about logistics, and I had learned a lot about OJT {on the job?} logistics. So I had the contacts with all of our truckers and the railroads.

We did a lot of rail shipments, and I developed some superb contacts within the rail industry. So I got reassigned as Vice President of Corporate Development. My primary responsibility was to do mergers and really look for acquisition opportunities, then be part of our merger acquisition team. Obviously a privately-owned company, the owner's going to be the guy who's going to control all of that. The owner and the president. But I had my arms up to my elbows in terms of doing the mergers and acquisitions. And then I still had the geology. I still did all of our geology. I still had all of the logistics with it. And for a while, the marketing. I finally gave that over to the sales guys too. But it put me in a different boat, because now, I didn't have all the reports, the reportees, if you will, that I had when I was on either the operations or the sales side. I was in a much more of a freelance position, which allowed me to blossom, if I can be so bold as to say so. Because that's where I worked best. Now I was free—I could reach out to this contact, or that contact. And I could look at business development opportunities: man, we really need to be doing this over here. We've got the facilities, but we're not doing anything with them. We can make some changes. So I was able to flourish in that environment, doing that kind of thing. And still had my hand in the geology, still had my hand—I still did a lot of our rock mechanics. We had two underground mines, everything else was open pit. So I still was going underground, looking at the roofs, that kind of thing. And doing the railroad contacts. Trucking less so, but certainly until I retired, I continued to maintain all the railroad contacts. In fact, when I retired and started consulting, CSX was my first client. [laughs]

01-01:55:20

Burnett:

That's mentioned here, yeah. So you had a rail company as a client. And a consulting company as a client, as well: Behre Dolbear?

01-01:55:30

Freas:

Behre Dolbear. That was before I ever retired, really. I did work for Barry Dovear when I was still with Penn Virginia, and I had to get Penn Virginia's permission to do some consulting work for them. But they didn't have anybody available in their staff in the east to do a specific limestone evaluation that they needed, that a client had asked them to do. So I did that project for Behre Dolbear.

01-01:55:54

Burnett:

So this sounds to me, I mean, I sense that what you like about this period is that it allowed you to be creative.

01-01:56:05

Freas:

It did. It allowed me to be creative. It allowed me to work without any boundaries. Oh, I had boundaries: I had to make a profit! I had to bring stuff to the table. But I don't do well when somebody's looking over my shoulder. I don't want to be micromanaged, and I don't think most people want to be micromanaged. But I certainly don't want to be micromanaged. And this may sound crass to some people, but I've always been a believer that if you don't

believe in yourself, nobody's going to believe in you. And I've always had a great deal of faith in my own ability to get something done. I mentioned to you before we started that I'm a born-again Christian, and I gave my life to Jesus Christ when I was thirty-one years old. Made a difference in my life that I cannot—I get teared up every time I talk about it, because Christ has made such a difference in my life. He's given me substance, and structure, and direction, and freedom. Because I'm not afraid to fail, because I've got Christ as my Lord. And I'm not afraid to fail. And when I had that kind of freedom on the job, I didn't have to look over my shoulder, because I knew I had Christ at my side—he was right there. I could do what I needed to do.

I got a call—I was on my way to Mexico. We had an office in Mexico, and we sold a lot of clay in Mexico, and I was on my way to Mexico, and I got a phone call from a very large international cement company. Said, "We are—" It was a guy I knew, again, SME. He said, "We're getting ready to do a huge acquisition that is a hostile takeover of a company that's in a prepackaged bankruptcy." And he said, "They've got a sizable lime and limestone asset, and we don't have anybody to take that piece. We don't want it." They had some silica sands, and two other divisions. This company was interested predominantly in the aggregate side of it. They had colossal aggregate assets. He said, "Would you guys be interested in the lime and limestone piece?" He said, "I need to know pretty quick." Mind you, I'm on—I don't know if you're familiar with the Dallas airport—I'm on the bridge that goes from one side of the airport to the other. I was walking between gates from one terminal to the other. And I'd stopped on the bridge to take this phone call in my cell phone. And I told them, I said, "I'm on my way to Mexico right now, and I won't get a chance to talk to our owner until I get back, but count us in." I said, "Give me a ballpark. What am I looking at?" He said, "Well, you're committing for about \$500 million." I said, "We've never done anything that size. We're a \$200 million company, but I'll commit for it." And when I got back, I went and saw my boss. I said, "[H.] Rodes [Hart]," I said, "Are you sitting down?" He says, "Yeah." I said, "Let me tell you what I've done." [laughs] He listened to this whole story, and I presented the whole thing to him. I already had in mind—we weren't in the lime business, and there was a substantial part of what we were going to take was going to be a lime asset. And I said, "I know where we can partner on the lime side." And I said, "I can make that contact. I can make that happen." I said, "But we'll pick up these plants from our competitors that we've lusted after for years, and we'll expand our market this way." And he said, "You have my full authority. Go for it."

And make a long story short—you know Paul Harvey always used to say there was a page two. This went on for about six months. The company that we were trying to buy out of bankruptcy, among the negative assets it had, it had a huge asbestos liability. It was controlled by a trial lawyer in Cleveland, Ohio, who really had all the suits (lawsuits) with him. And as we went through the process, we ended up now there were four partners: one wanted the aggregate, one wanted one division, one wants sand, and we wanted the

other piece. The lime company stayed undisclosed. They were a silent partner with us. It became obvious we had to get in bed with this trial lawyer. Or, I shouldn't say get in bed. But he had to become part of the transaction. And we negotiated with him. He agreed that he would support our side of it. We agreed that he could get \$75 million, we'd walk away from the whole thing, and that's how it worked. And it was fine. It was good.

So this was to be in federal court, federal bankruptcy court in Dover, Delaware. We worked with him that evening before the trial, the final settlement date and trial was to be 9:00 the next morning. At about 8:30, we got a cell phone call from the judge's court secretary, and she said the hearing's been postponed to 1:30 this afternoon because we had a case carry over from the previous day. We walked in at 1:30, and our chief lawyer looked at me, and he said, "We just lost." The trial attorney was sitting over there with the prepackaged bankruptcy people. He had sold us out in the morning, because he had time from when it was delayed. He had taken our offer and gotten a better one from them. Sold us out. And we never—I got on an airplane and flew home. I had to drive, at that time to Baltimore—Nashville's a Southwest hub, and we didn't have service to Philadelphia. So I drove from Dover to Baltimore. I was absolutely hollow. I mean, I didn't have anything left in me. I was emotionally drained. I had committed so much effort. All of us had. We all felt the same way, every one of the partners. But it was devastating, as far as I was concerned. We'd gotten this far, and it all fell apart because of a trial lawyer in the eleventh hour. [laughs] But all of that is to say, it gives you an example of the freedom that I was able to experience on the job. I was given total autonomy. All I had to do was keep the owner informed. I would write really detailed reports of what we were doing, but I loved having that kind of autonomy. I loved having the freedom, that he had that much confidence in me that I could do that.

01-02:03:11
Burnett:

Yeah, yeah. Well, it sounds like an ideal situation. And many accomplished people talk about the key piece being the freedom to fail, the freedom to succeed, but having that freedom nonetheless to explore, and take chances, and that's what makes the work exciting and fulfilling. You know? So that's interesting. And he trusted you. And in the end it all worked out. That was a project that didn't work out.

01-02:03:45
Freas:

It was a project that didn't work out. But as a company, we continued to survive. We continued to grow. And unfortunately, that was 2004. 2006, the guy who was president of the company was, at that time eleven years older than I was, said, "I need to get out. I want to get out." Well, our owner was only four years younger than he was, and he said—and he had family, but there was no succession plan, because none of his kids were qualified to take the company. He said, "We're going to sell the company, then." And he said, "It's probably time. We need to sell the company." There were three vice

presidents of the company: a Vice President of Operations, Vice President of Sales and Marketing, and myself as Corporate Development. He called us in, told us what it was, what they were going to do. And he said, “I need all three of you guys to buy in.” And he said, “I will write up a contract for all three of you, and you’re to stay six months after the acquisition. Whoever it is that we end up with.” And he said, “You will be paid to take care of, assist us with the sale.” They used one of these firms that handles divestitures. So we had a commercial firm doing that. But we needed to be there to help with the due diligence that the potential buyers were doing, we helped put together the list of potential buyers, potential candidates. We worked with the divestiture firm, and then we assisted with the transition to the new company. The other two stayed with the new company; I walked out six months to the day. I had no interest in working with this company. It was not a company that I fit with. I was a bad fit with it. I could see that going in, and I said, “I will work to fill my six months commitment,” and six months to the day, I walked out the door.

01-02:05:41

Burnett:

Yeah. So it felt like the culture was different?

01-02:05:44

Freas:

A totally different culture. It was a foreign company that bought us. Their management philosophy was totally counter to mine. The way they dealt with people was totally different than what I expected a company to do: my employer’s going to deal with people fairly, and they’re going to do it this way. And totally above board, totally ethically. The company was not dishonest. It didn’t treat people dishonestly, but you were a number on a payroll slip. I didn’t want to be a number on a payroll slip. And I want to be loyal. I want to have a sense of ownership—even if I, I never owned any of Franklin, but I had a sense of ownership.

01-02:06:33

Burnett:

Yeah. Over the work.

01-02:06:37

Freas:

Yeah. And I want to feel appreciated. And I want to go to—I looked forward to going to work on Monday morning. I feel sorry for people that don’t like their work, and they don’t like their jobs. How awful would it be for thirty years to, oh, it’s Monday. I’ve got to go to work. I don’t want that. I’ve never wanted that. The mining industry has provided not just the companies that I’ve worked for, but it’s provided a community that I can take pride in. I love being part of the mining industry. I can get really passionate about the mining industry. There’s good people here. This is my family. I have the best friends I have in the world. People ask, they say, “Bob, you’re seventy-four. Why are you still working? You don’t have to—” Financially, I don’t have to work. But I want to. I don’t want to lose these friendships. I want to stay connected. I want to come to the SME meetings. This is my family.

01-02:07:42

Burnett: Yeah. When people enjoy their work, there's no retirement.

01-02:07:48

Freas: No. And people ask my wife. They'll say—in fact, it happened last Sunday at church. Somebody said, “How long's Bob going to keep consulting?” And she said, “Until he stops having fun.” And that was her answer. Now, when I retired, I stayed retired for thirty days before I started the consulting, and my wife—and the phone was ringing, people saying, “Are you going to be available?” And they started doing this when they found we were sold as a company for six months, I'd been getting phone calls. My wife and I negotiated, and she said, “Look. If you want to consult, we still have to have time to travel. We still have to have time to spend with our grandkids, and whatever.” And so we agreed that I would not consult more than eight to ten days a month, and we have held to that. My wife and I have been married fifty-two years. It's a partnership based upon respect, and love, and a mutual willingness to compromise and agree on things, and we'll hold to it.

01-02:08:50

Burnett: Yeah. Yeah. What's your wife's name?

01-02:08:52

Freas: Judy.

01-02:08:53

Burnett: Judy.

01-02:08:53

Freas: Or Judith. She'll say, “If you're Robert, I'm Judith.” I say, “Well, I'm Bob, so you're Judy.” [laughter]

01-02:08:59

Burnett: Well, we want her name for the record. It's important. So, yeah, it's one of the things. Because these are demanding jobs, and you had a tremendous commitment to whatever job you were doing.

01-02:09:13

Freas: And that commitment carried over. It didn't make any difference, Paul, whether that commitment was to Franklin Industrial Minerals, or Dravo, or Penn Virginia. That commitment was to SME and AIME [American Institute of Mining, Metallurgical, and Petroleum Engineers], because we have to give back. If you don't have people that are willing to give back within the organization, if this organization is willing to vest in me the responsibility of the president of SME, or the president of AIME, or even AIME's overall corporate thing, UEF, the United Engineering Foundation, which I was also president of. If they're willing to vest that responsibility in me, or even now, be on the board of trustees of the foundation, then by golly, I'm not going to let them down. I'm going to give back to the best of my ability to whatever organization we've got.

Now, I teach adult bible study. I've taught adult bible study for thirty, forty years, something like that. I've got a Sunday school class that I—adult Sunday school class that I teach. It's a good-sized class—that I teach every Sunday morning at church. And I've told people: don't count on me being here Saturday night. I won't be at a Saturday meeting, because I'm going to teach my Sunday school class, my bible class, and then I'll catch the afternoon flight. I got here at 5:00 yesterday, as soon as Sunday school was over, as soon as church was over and Sunday school was over, then I went to the airport and caught the afternoon flight. Because I'm going to—and I'll be back next Sunday to teach them. So what I'm saying is you make the commitment in life to whatever responsibility you take. It doesn't have to be your job, but it's whatever you're going to do. My wife and I both have gone on mission trips and been in the mission field.

01-02:11:03

Burnett:

Where did you go?

01-02:11:04

Freas:

I've gone to—my wife and I together have gone to Chile and Honduras, and then I went with my eldest son, he's chairman of missions as a layperson for a church in Atlanta, and I've gone with him to Nicaragua, and then two years ago I was in Kenya. We'll be going this year again, whether—it's still a little up in the air whether we're going to go to Ecuador or whether we're going to go back to Kenya. But the same thing again. I'm going to give back to my Lord, I'm going to give back to my church. Because they've given to me. This organization has given to me. It's given me the networks, the contacts. I've had two job changes because of SME. They've given to me. I've taken a lot from this organization, as well as the research materials that I've gotten. And the technical data that I've gotten. But it's been a technical information exchange. I owe back for whatever I receive. There's an accountability in life, and I get so frustrated with people that don't want to take any responsibility, or they don't want to have to think—I can understand somebody who doesn't have the innate intelligence and the brainpower. I mean, we don't all have the same brainpower.

I had a secretary once. She was just a sweet little girl. Unfortunately, she had lupus, and she's passed away. But she was a sweet little girl. And she used to refer to herself—she wasn't the brightest little girl in the world, but she was reasonably intelligent and she did her job fine. And she used to say, "Oh, dumb me. I'm so stupid." You'd hear those kind of comments, and one day, I called her into my office, and I said, "I don't ever want to hear you use the word stupid again. I don't want to hear you refer to yourself as dumb. I don't want to hear you refer to yourself as stupid." I said, "You're doing a wonderful job for me. You have all the intelligence you need to do this job well. There's nothing dumb about your behavior." I said, "You're my administrative assistant." She was actually my second. I had a primary admin—I had two gals working for me. But I told her, and I don't mean that

as a self-effacing way, but it was something that really bothered me. Because she had such horrible self esteem. And there's no excuse for that.

You don't—as a parent, you don't raise a child to have no self esteem. You don't call a child stupid, or dumb, or whatever. Build them up. I coached youth athletic leagues as a volunteer basketball, and baseball, and stuff for twenty-six seasons. I loved the kids. And if I could instill in them a little bit of self-confidence, a better appreciation of the sports—I would teach my kids fundamentals in baseball when I was coaching baseball for my kids, because I wanted them to understand and appreciate baseball with the same love that I have for baseball. I love baseball. I love hockey. But if they knew the fundamentals, they could appreciate the detail of the sport. It helps grow young men and young women when they have a sense of team. And a sense of self worth in the process. That's way off the topic where you asked me to go.

01-02:14:38

Burnett:

Not at all. Not at all. I mean, to bring it back to everything you've been talking about, there's—the goal in this project is to talk about large socio-technical systems, right? What makes these systems function, and how do they evolve and change over time? And something that you and other scientists and engineers have said in not just mining, but in biology, and all of these other fields, is how much the official institutions depend on the voluntarism of the people.

01-02:15:16

Freas:

They do.

01-02:15:17

Burnett:

That they seek out these social networks that kind of bleed out from outside of the boundaries, of here's the work you do, this is your responsibility. The people are self-actualizing in their seeking out connections, and seeking out new kinds of work. Just because they want to be fulfilled.

01-02:15:36

Freas:

Yeah. Well, you know, there was a great politician—I'm not a great fan of politicians, but John F. Kennedy made that great speech when he said, "Do not ask what your country is going to do for you. What have you done for your country?" And that's stayed with me for a long time, because it's—that's what it's about. It's not all about me. It's not all about you. What can we do together?

01-02:16:03

Burnett:

Right. The larger purpose, the larger goal. Yeah.

01-02:16:07

Freas:

Yeah, yeah, yeah. If I give of myself, or you give of yourself, to an organization or a company, or whatever it may be, and you have success, that's the satisfaction. That becomes you've got a lot of atta-boys back here along the way. I had a good friend when we lived in Pittsburgh. He was a

county commissioner of Allegheny County, Pennsylvania. And he constantly wrote notes, thank you notes, to people. And I asked him about it one day, and he said, “Bob,” he said, “I’ve been a county commissioner of Allegheny County for twenty-seven years,” I think it was at that point in time. He’d also been a state congressman as well, but he was a politician. He said, “I have never gotten anywhere by myself.” He said, “The two words you need to always remember are thank you.”

01-02:17:11

Burnett: Well, perhaps on that note—[laughter] I’d like to thank you for spending time—

01-02:17:15

Freas: Well, I thank you for letting me just go on and ramble. [laughs]

01-02:17:18

Burnett: Yeah. No, this is really great. And hopefully we can do a more in-depth interview down the line, but—

01-02:17:26

Freas: That’d be fine.

01-02:17:26

Burnett: —this is a great start.

01-02:17:28

Freas: Very good. Thanks.

01-02:17:28

Burnett: Okay. Thanks.

[End of Interview]