RISK MATTERS EP5 TRANSCRIPT

Jeanne

Hi, I'm Jeanne Johns and welcome to Risk Matters where we discuss our experiences in leading inherently high hazard industries and share our lessons learned in our commitment to eliminate industrial accidents and keep people safe. It is my distinct pleasure today to introduce our guest, retired Captain Jim Wetherbee from the US Navy. Now, I know Jim from his time with bp, but Jim is better known as a six-time space traveler and the only American to command five different crews into space.

After graduating from Notre Dame with a degree in aerospace engineering, Jim joined the US Navy as an aviator and as a test pilot. In 1984, Jim was selected by NASA. And in NASA he flew twice to the International Space Station and twice to the Russian space station Mir. He also served as the director for flight crew operations.

After the tragic space shuttle Columbia accident in 2003, Jim was the search director responsible for finding the human remains of the flight crew. In 2005, Jim joined BP as safety auditor and worked with the Texas City refinery. In the aftermath of their tragedy, Jim became a key member of the investigation team for the Deepwater Horizon accident and served as a technical editor of the report.

With over 35 years of experience as a test pilot, astronaut and a safety executive in the oil and gas industry, Jim authored Controlling Risk in a Dangerous World. Jim is also a proud and talented musician. And with that I'd like to welcome Jim.

Jim

Jeanne, thank you very much for having me. Great to see you again after all these years.

Jeanne

Yes, it has been a while and I have to say as I reviewed your resume, it never ceases to just amaze me. It's just hard to know where to begin. But what does strike me is how much experience you've had in recovery efforts, be they with the Navy, with NASA, with the space shuttle, BP, Texas City, the Deepwater Horizon.

I mean, what attracted you to these dangerous businesses as well as kept you in them?

Jim

Yeah, it's been a great privilege for me. First of all, you know, the only thing I've ever really wanted to do Since I was 10 years old was to fly in space. And it was such a privilege to do that, not only once, but six times. I've just absolutely loved working in dangerous businesses.

But it's not the danger I like. In fact, I don't like the feeling of adrenaline if things start to go wrong. What I really love is controlling the risk. And so, thanks for having me today to talk about these kinds of topics.

Jeanne

And it's a fabulous privilege to do what you love for a living. And I know I personally always say that I've been So blessed to have such interesting work and to work with so many fascinating people like yourself. It really is a privilege. And you often talk about controlling risk. I mean, you literally wrote the book on it, and we'll come back to that in a minute.

But there's one thing I'd like to explore in your resume first, and that sparked my curiosity, and that's your role as a musician. I mean, I fondly remember you playing with the BP Safety and Operational Risk Band during our time at BP. And in your book, you mentioned that your mother was a big influence on your love of music.

I mean, how do you think about being a musician? And how did that impact your approach to safety and risk?

Jim

Well, we started the band about a year and a half after the Challenger accident, and the office was trying to get back in the mode of flying again. We were trying to really get excited about the return to flight. So, we started a rock band. And one of the first things I realized was I was much more scared getting on stage to play in front of an audience than I was climbing on top of a rocket.

What I realized, of course, it's all about preparation. There's so much preparation at NASA for flying in space, and it really builds our confidence. We just didn't have enough time to practice the music. It took about seven years of playing before we finally felt comfortable getting on stage, playing in front of people.

But I've just loved both avenues for trying to mentally get in the game, control what we're doing and be successful and have great outcomes.

Jeanne

Yeah, I mean, I think that practice makes perfect is. Couldn't be truer. I think sometimes people just underestimate how much practice is actually needed.

Jim

Yeah, yeah.

Jeanne

You know, and it does remind me a bit of an episode earlier in my career, because I always remember that, you know, I always got nervous public speaking, and I admired those who

did it so naturally and so effortlessly. And at one point, I was participating in a BP technology event, and they invited a BBC presenter to be the master of ceremonies.

And I just remember when she entered the room, I mean, she was all business. I mean, she wanted to know the facts, she took notes, she went to a quiet spot and practiced. And then once we got on stage, she was absolutely fabulous, but it looked like she was just talking off the cuff at that point.

And so, I do think that whether it's on the job or on stage, when you deviate from the script, that's only possible after thorough preparation, preparation and practice, practice, practice.

Jim

And then getting your mind in the moment and Staying in the moment, not worrying about the future, but just responding to the events that are going on right now. It's kind of an exhilarating feeling. It's really fun.

Jeanne

Absolutely. But you just got to give up a little control.

Jim

Yeah.

Jeanne

And, you know, as I think about learning from others, you know, one of the things you mentioned to me earlier was an early mentor of yours from NASA. I think you referred to him as the father of continual human presence in space. Kind of brings up images of the International Space Station. But when you think about what did you learn from him and why was he such an impactful mentor?

Jim

Yeah. So, his name was George Abbey. And if I go back to 1967, we lost three astronauts in the launch pad fire, and the Apollo program was really literally and figuratively in the ashes. And a man named Dr. George Lowe came in and rescued the Apollo program in late 1967, got us back on track and got us to the moon.

By 1969, before the end of the decade, as President Kennedy had directed, George Lowe mentored a man named George Abbey. And after the Challenger accident, George Abbey took over and he mentored me. So, I have a direct line to the greats of the space program that recovered after tragedy, and the way we did that is to go back to the principles of operating excellence.

And that's what I learned from George Abbey, and he learned from Dr. George Lowe. If you understand the principles of operating excellence, the beauty is not only will you be able to prevent all accidents, including ones that are unpredictable, because you're doing the right things for the right reasons, but you also accomplish more and you accomplish in high quality ways.

That's the biggest thing I learned from George Abbey. You know, if you look at his career, it looked like he was fairly conservative, but he had the highest flight rate in the 60-year history of flying in space.

Jeanne

Yeah, no, it's great to have a North Star like that, especially when you're faced with decisions just to sort of think back to that person and their perspective and help that guide you when you need to be more or less conservative and why, you know, it's safe to proceed. And it kind of ties into one of my mantras, which is always about a reliable plant's a safe plant.

And it kind of talks about that operational excellence going hand in hand with controlling risk. You know, one of the things in your book, Jim, that you acknowledge is that organizations that operate in high hazard industries, you know, have to both simultaneously improve performance and manage risk. And, you know, I've spent, you know, most if not all of my career in cyclical businesses, be they refining chemicals, oil and gas, you know, and so often when the cycle turns, the pressure to cut cost and, you know, almost by definition corners to improve financial performance just gets really intense.

And so, when you think about managing through the downturns, I mean, how do you do that or how do you think of doing that without compromising your principles?

Jim

So that's the key. Exactly. If you stick to the principles which you do not violate, then it will work out for the best. I think back to the example I have is when I was the director of flight core operations. So, I was responsible for delivering crews to the launch pad in a high state of readiness, able to achieve the mission.

And the leaders of the program that controlled the budget came to me one day and they said, you know, you have this $29 million per year three degree of freedom simulator that we were using to train the astronauts to lift payloads out of the payload bay with a giant crane. And, you know, a very demanding task.

It's analogous to taking a satellite that weighs 29,000 pounds on the Earth but still has the inertia, even though it's weightless up in space. If you make a mistake and you jam that into the side of the vehicle, it will go right through, like an 18-wheeler that has its brakes fail. It'll go right through the wall because of the inertia.

So, we had this great simulator, but it was $29 million a year. And so, the program came to me and they said, we have to cut this out of the budget. You won't have the simulator anymore. Here, sign this piece of paper. And I said, now wait a minute. You're saying I have to sign this piece of paper.

What if I don't sign it? Well, we don't have the money, so you can't have the simulator anyway, so sign this piece of paper. And I said, well, let me take this home tonight. I'll think about it and I'll come back tomorrow. So the next day I came back to them and I said, here's the deal.

I will sign this piece of paper and give up the simulator. But here's what you're going to give me. If we don't have the 3 degree of freedom simulator, I need many more 2 degree of freedom simulators in the form of computer based training. I need more instructors. I have to assign the crews a year and a half ahead of flight instead of just one year ahead of flight, because my job is to deliver crews that are trained and ready to fly in space.

And if you're going to take the money away from me, here's what you need to do to give me the ability to continue my mission. So, I was not going to violate my principles even though they were taking the budget away. My message is I hope there's always a solution. If the budget is causing problems, there's something you can do.

And do not violate the principles of operating excellence.

Jeanne

That's a fabulous example. And I love too that you took it away to think about it. It's a decision that didn't have to be made in the moment. And providing an option is a good way to answer those pressures. It's recognizing the pressures, but also not violating your principles. Yeah, I think so often, and I think you mention in your book, people frame up in their minds that increasing profitability competes with preventing accidents.

And I just think it's important always to keep in mind that you kind of have to do both. You need to invest to prevent accidents and you need to generate profits.

Jim

Right, right.

Jeanne

And I do think that the way you frame up risk management is relying on operational excellence and the quality of work kind of helps reconcile that paradox.

Jim

Yeah. And then you get both because again, you're doing the right things for the right reasons and preventing accidents without even knowing it, but you're delivering high quality work.

Jeanne

And I also think it helps resolve the accountability issues around safety because I remember early on in the industry when we really wanted take a step up on safety and we didn't call it operating risk, but that's what it was. And our first reaction was to create big safety departments. And I think for a while there was some confusion about who was responsible for safety.

It was almost like the safety department. It was their job to make sure that you did things safety. And I don't actually think that works. And I think over time as an industry, we've gotten much better about, yes, you need a safety department, but actually safety and managing operating risk has to sit with the line.

I mean, how do you think about accountability for safety?

Jim

You bring up two points, both great points. The first is I was fortunate in early in my career I was flying single seat airplanes. And so I could not rely on the safety officer in the squadron because I was alone, facing the hazards, trying to complete the mission in my single seat airplane.

So I've always understood that I was the owner of safety and operations if I wanted to do the job well. But you bring up another great point about accountability and I think that word is often misunderstood. In so many organizations, they do understand half of the concept of accountability, which is blame after an incident or a problem.

But the more powerful and valuable aspect of accountability is how do you demonstrate accountability before an incident or before anything starts to go wrong? And that's where companies and even individual managers don't really understand the concept. So it's another thing I learned from George Abbey so well. Well, if you think about responsibility, it means I must do something.

It's in my contract, this is what I'm supposed to do. But accountability is not a higher sense of responsibility. It's actually a shared two person responsibility you think about. Accountability comes from the business world to open up the books and give an account. So my boss, Mr. Abbey, would come to me periodically, every two weeks and he would say he would ask good questions like what's going on in the astronaut office now?

What are the hurdles that you have? What are the challenges you have? Do you have the resources you need to solve the problems? What's coming up next week? And that feeling that he was going to ask me the same kinds of questions two weeks from now gave me an added sense of responsibility because I knew I had to answer his questions.

So accountability before an incident is very powerful. Not only do I have my own personal integrity spurring me on to do great things for the organization, but I also have my boss who's going to come and ask me questions about how it's going. And by the way, he didn't only want me to share with him the sunshine report or things are going well.

He really gave me positive body language, indications that he was interested if I identified a problem, even if I didn't have a solution, because at least I identified the problem, the vulnerability, and we were going to work on it maybe together or maybe next week. So this feeling or this sense of accountability to someone, it only works if someone comes and periodically asks you questions, is a great motivator in addition to my own personal integrity and responsibility.

So I encourage companies to embrace accountability before an incident, periodically have the conversations, what's going on? How can I help? What are the hurdles we have? What are the challenges? And then you can identify problems early and fix them when they're easier to solve.

Jeanne

I think that's a great point too on the sunshine reports and rewarding vulnerabilities. Because there's sort of a human reaction sometimes when people bring problems or vulnerabilities. You know, if a manager lets that negativity come out, it just shuts off real dialogue about what you should be focused on, which is what's not going right as opposed to, you know, thinking about what is going right.

Jim

Exactly.

Jeanne

And, you know, as you think about, you mentioned about before the next accident. I mean, one of the things you often talk to executive leaders about is the 10 adverse conditions to be observed prior to an accident. And I think in the upcoming Pilko Governance Forum, you'll be tackling one of these, which is when organizations focus too much on results versus the quality of activities.

And so I actually want to explore a different adverse condition on the podcast, which in your book is number three, which is about when an assurance process is not created. Can you share some insight into this condition and maybe an example?

Jim

Yes. So this is another very powerful, important concept in the journey toward operating excellence that I learned from Mr. Abbey. So he was responsible for leading the effort to design, fabricate, construct, and put into operations the International Space Station up in

orbit. We had multinational effort, of course, and thousands of contractors helping us as subcontractors.

There's no single manager, no matter how brilliant they are. And Mr. Abbey was definitely brilliant. No single manager knows enough to be able to make effective decisions. So he created what we called an assured assurance process. We had a team of engineers that would go and visit the different subcontractors and contractors around the country and around the world, and they would inspect, audit, interview people, observe, and they would collect all this data on the current and past performance of the contractors.

And then the senior leader would use judgment and experience and turn that observations and data of current and past performance of the contractor and turn it into a prediction of future performance. So assurance is nothing more than somebody telling the boss, for example, I predict they will continue to deliver high quality connectors that we need for the design of the International Space Station.

Because I have observed what they've done in the past. We have an inspection process. We see that they're following the process well, they're high, they have high quality in their production line, et cetera, or the converse. Maybe they're not going to continue to deliver high quality conductors because we've looked at their inspection process.

They're missing a few things. And so it's a great way for the executives to be able to make good decisions because they have assurance from somebody with experience based on past observation and current observation. I predict they're going to have this kind of performance in the future with some uncertainty and some levels of confidence, of course.

But this assurance process is so powerful to help executives make good decisions. And you can think of all Kinds of negative examples in the world where the main entity didn't understand that the contractors were not doing the job well enough and it really creates problems. But if you have this kind of assurance process, the executives are better suited to solving problems early and creating this culture of operating excellence.

Jeanne

Yeah, no, the assurance process is so important because it allows you to detect and correct what often is a slow degradation of the operating norms, whether they're with the contractor or actually within your own organization.

Jim

Many companies will do the observation and the inspections and the audits, but it's this final piece of using the judgment and experience to turn that observation of current and past performance into prediction of future performance.

Jeanne

Absolutely. That's where the value actually lies. You know, and I also was thinking as you were talking, Jim, that, you know, when we were both in the safety and operational risk organization, you know, we adopted the mantra, how do you know? With the emphasis on knowing. And I think that kind of is the same point, is that I think it dawned on us that a lot of leaders were making assumptions as to the quality of the work that was going on without actually the knowledge and getting into the field.

Field to actually observe it themselves and confirm or not the quality of operations.

Jim

Right, Exactly.

Jeanne

Yeah. Well, I hope this has whetted our audience's appetite to either read your book or to come to the upcoming Pilko Governance Forum. And I think actually this is a great time to take a quick break for a message from our sponsors. And when we return, we'll be segueing from the warning signs to how to control risk.

As I said before the break, we'll now transition from the warning signs, Jim, to your thoughts on how to control risk. As I mentioned earlier, you actually wrote the book of controlling Risk in a dangerous World. I mean, what motivated you to write the book?

Jim

Well, thank you. So after I left BP, you know, I had such a wonderful career. I thought it was my duty to share the lessons that I had learned over the years. And I would deliver speeches at conferences, and often audience members would come up and they would ask for my notes because they wanted something to refer to.

I kept getting so many requests. Can you share with us in writing the things that you're talking about? And I suddenly realized I had enough information that helped. Helps not only people in the space industry, but also in the oil and gas industry. And then I began to realize because I was talking to so many other businesses in dangerous environments, you know, explosive companies, construction companies, police forces, hospitals.

So I decided to write the book to share that knowledge of the things that I had learned over the 35 or 40 years of working in dangerous businesses.

Jeanne

Yeah, I mean, I loved reading your book. And one of the things that struck me is how you start it. You start by saying there's countless ways in this world to be hurt or die prematurely. And while I often talk about a healthy paranoia about risks or respecting the hazards you manage, I just love that visceral language that you use when you think about risk as being watching out for things that are trying to injure or kill you.

Can you comment on the use of this language?

Jim

I've found throughout my career that, well, two things. First of all, storytelling is very important. That's how people learn. You don't want someone to go through the experience of having a tragedy or seeing an explosion in the results, so you try to give them the visceral feeling or the experience without actually going through that.

So one great example that I like is in the oil and gas industry. After the tragedy of the Deepwater Horizon, when we had completed the process of recovering and writing the report, I wanted to go and talk to some of the recognized experts. And I found a driller from Houma, Louisiana, had a very thick Cajun accident.

It was kind of hard to understand, but it was so inspirational to hear him talk about how he thinks when he sits in the driller's chair conducting operations for his two week shift. And they call it, you know, the hydrocarbon zone, as you know, is 13,000 psi. And it's always trying to come to the surface and kill people.

And he called it the monster in the hole. And he said, the whole two weeks I'm in the chair, I'm wary, I'm watching out. I'm trying to prevent that monster in the hole from coming up and killing us. And that mindset is so important and powerful in a dangerous environment. You know, it's not.

Those of us who are comfortable working in dangerous environments, we don't worry about death. Worry is unproductive. Fear, there is some fear, but we control that fear and we turn it into preparation, as we talked about before. But the way that we talk about it keeps it important in our minds. And it's also a way to train the new folks that are coming in.

If you use that kind of language, then they really get it and they understand the importance of operating excellence because they're hearing stories about the monster in the hole and death and destruction. And our job is to prevent that from happening.

Jeanne

Yeah, no, I love that visual impact. And as you say, it really you know, hits home a lot better than talking about safety rules or, you know, safety. It's like you're trying to keep yourself alive. Yeah, that gets your attention. So in your book, you did a great job at differentiating between different aspects and perspectives when it comes to controlling risk, whether you're an operator or a manager.

And one of the things you framed up that I really quite liked was ksa, which is knowledge, skills and aptitude or attitude of the operators. And I think probably everybody who's listening to this can think about how you measure the first two. But, you know, measuring attitude is really quite hard. Or maybe that's just me, but it seems a bit softer.

I mean, how, how do you go about assessing the attitude of operators when it comes to controlling risk?

Jim

It definitely is hard to measure and evaluate and teach, but it is by far. Of the three knowledge, skill, and attitude, it is the most important and critical. You know, an organization can give you the knowledge in the classroom setting or books, you can develop the skill, the practical application of that knowledge with on-the-job training or in a simulator, etc.

But the attitude is by far the most important and it's the most difficult to teach and help people with. Just a couple of quick examples. Before I flew a Navy jet the first time I looked at the syllabus and I had no previous flight experience, I looked at the syllabus, the organization was only going to give me six flights in the simulator, which I thought was insufficient.

So, I became friends with the night shift janitor in the simulator building, and he would allow me to sneak in and practice surreptitiously for weeks before my first flight. So, I had six times as many hours as my peers just because I had the mental attitude that I was going to work really hard at this job in preparation.

It never really seemed like work to me. It was always a whole lot of fun. You know, I can think of other examples where the attitude has really saved me from dangerous situations. Just one last story, if I could. You know, the job of being an astronaut is, is. It's fun, it's professionally rewarding, very satisfying, it's the pinnacle of a professional career.

But there are a couple of times when the, when the magnitude of the job really hits. And one of those is the night before your first launch attempt. When my head hit the pillow, I realized I've just now run out of time to get any smarter and it's too late to quit. And I had to think to myself, how am I going to get a good night's sleep in preparation for this important event tomorrow.

Launching on a 7 million pound thrust bomb. And I thought to myself, this is the only thing ever wanted to do since I was 10 years old. Well, that's helpful but insufficient because I could still die tomorrow. And that's not what I wanted to do since I was 10 years old. So I thought a little more deeply and I realized tomorrow morning when I wake up, I'm going to, if, if bad things start happening on this vehicle as we're ascending into orbit, I'm going to spend my last seconds trying to save in priority order, the crew, the vehicle and the mission.

Essentially, I was taking myself out of the equation. Doesn't matter what happens to me. If I can save the crew, I'll die happy. And so that motivated me. You know, when we're working in dangerous environments, it's always best, I think, to think of others. Humans really get spurred into greatness when they are thinking about how do I save my buddies, the co-workers?

And I think that's a, a way that operating excellence occurs when we, when we take ourselves out of the equation and think how do I contribute to the mission, how do I save the vehicle or the systems? And of course, ultimately how do I save the crew? So, I think that, and that attitude has stuck with me throughout my career.

It's always about somebody else. You know, as you and I are talking here, the important entity in this, in this project are the viewers because they're the ones that are receiving the information. It's not you and I are not the important ones; it's others who are receiving this information because they're doing the valuable work in their companies and trying to master their jobs with operating excellence.

Jeanne

Yeah, and I love that story. And as you know, you read through your book, Jim, it just comes across so much basically that whether it's dichotomy of really confidence, but also self-doubt. And I think that's a really magical combination. When you think about undergoing missions in high hazard industries and being able to control the risk.

Jim

Yeah, exactly that healthy self-doubt is something that has really helped me to study harder, work better. In the book I called it, you have to balance confidence with humility. There are too many leadership coaches. I think that talk about a leader needs to show vulnerability. I kind of disagree. Nobody wants to follow a leader who's vulnerable.

That sounds like too much of a weakness to me. I call it humility. If you have confidence, it gets you into the arena and you won't make mistakes. But if you don't have humility, you won't realize you're making mistakes. So, you have to have both the confidence and the humility to realize. I know I have the confidence to do the job well today but am I doing this job correctly right now and it causes you to make sure you minimize errors and again work with operating excellence.

Jeanne

Yeah. And you mentioned or you've talked a lot about principle-based approach to controlling risk. I mean, how does that differ than how you sometimes see leaders showing up in the field?

Jim

I think many organizations embrace the concept and the principles of managing risk. They do it very well. As you know, when we manage risk, we assess risk in disparate parts of the organization. We can decide how much money or funds to allocate or resources to allocate to reduce the risk or mitigate it below a certain level.

And one of the products of the managing risk process is rules-based procedures. Do it this way. Here's the checklist. Follow the procedures. It's all great. Keep doing that. Companies, they do it so well. But what we need to do is to supplement with a principles-based suite of techniques of operating excellence which are open ended and adaptable.

Yes, you have to follow the rules, and you know it's very important. But if we can help the operators with the techniques of operating excellence or ways of thinking to supplement the rules, then they have a winning combination. Just a quick example. You know, many companies have the rule that specifies you can't use a cell phone when you're driving on company time.

So that's a rule. It's a very good rule. But a better principle you might espouse is how about avoid all distractions in the car. Maybe it's the conversation I'm having or listening to the music on the radio or thinking about the meeting late for or what is my boss going to ask me to do today?

Said positively, use proper defensive driving techniques. The techniques of defensive driving when you supplement with the rules, policies and procedures of simply don't use the cell phone can have you accomplish the mission, which in this case is don't have an accident when you're driving to work.

Jeanne

Yeah, I think that's a great example. You know, you love telling stories or I love hearing your stories about how you help leaders inspire people to both perform better individually or accomplish more collectively in service of their goals. Can you share an example or two of this for us?

Jim

One of the best examples I, I know well, I'll give you two examples. One, one was in NASA. We had a giant thermal vacuum test chamber in Sandusky, Ohio. And the supervisor had a reputation for leading the team that did the maintenance work on this test chamber. And they were really good. They were very high performing.

And I asked that supervisor one day, your, your team is so good when they do have a problem, what maybe caused that issue or that problem? And he smiled at me and he said, you know, if my crew ever has a problem, it's only one of three reasons. Either I didn't explain the job well enough to them, or I didn't give them the proper tools, training, and resources to do the job, or I put them in a situation where they

simply weren't ready for it. So, it occurred to me that he was looking at himself. He was not blaming the crew for making a mistake. The upside, positive consequence. They love working for him because he never blames them. They know if they need a special tool, they can ask for it. If he can't find the funds to give them a special tool, he'll give them different ways to accomplish the task.

And they love working for him, and that's why they're so good. Good. Similarly, a story in the oil and gas industry. I met a supervisor of a welding team that was doing on the turnarounds of the rigs down in the Caribbean. And I had an opportunity to talk to that supervisor, and I asked him one day, you know, your crew has a reputation for being the best in the fleet.

They weld so well. How do they. What do you do to inspire them to become great welders? And he said, you know, my bosses, my managers will give me a metric of, let's say we welded 95ft yesterday, we're going to weld 100ft today, and that's the metric they use for performance, is how much they weld.

But he said, I insulate them from that metric. I asked them, please, weld correctly. Let's figure out how to be the best in the fleet. And they have done that. And they love working for him. They take short breaks, they get to work, and often they do exceed the 95ft because they're not having to repeat work.

They weld perfectly. They don't fail inspections. They love the job because they're learning how to do really well. He has inspired them to operating excellence by shielding them from the metric. And the cool thing is, they do accomplish the metric because they're learning how to do the job really well. So, they do achieve more and more, which is exactly what the executives wanted to do.

Jeanne

I love both those stories. I think the humility comes out of that first one and the focus on quality versus end results on the second one. But they're both great examples. So, I could listen to your examples all day, Jim, but I think it's time for us to wrap up. What would you like to leave the audience with today?

Jim

I think probably, and we touched on it early, I always think about the golden questions when we're working in a hazardous environment. I had a senior executive in a large company ask me one day, how do we prevent the next accident when we don't know where to look? So that's the first golden question.

The second is, as we've talked about, how do we improve productivity and still be safe? The answer to both of those questions, I think is operating excellence, which is a combination of managing risk, having the rigorous processes, the rules, policies and procedures, but

supplementing with the principles-based techniques of operating excellence. Because now you have a winning combination where, where the workforce is operating with high quality.

They're motivated to do the job well and that gives them the ability to accomplish much more in high quality ways. And they're so fulfilled. They just love working with better tools, better equipment, better techniques. And they love sharing that knowledge to others. And it's a synergistic improvement. The whole company benefits and then hopefully better product result and society benefits because everybody's operating with operating excellence.

Jeanne

Yeah, I love that. And that sense of pride of the workforce just comes through as they operate excellently and control the risk.

Jim

Right.

Jeanne

Well, I think that's a great message for us to end on. And I also love that it addresses that false dichotomy between safety and excellent results, perhaps pulling you in two different directions. And I encourage everybody listening, if they want to hear more from Jim, to pick up his book *Controlling Risk in a Dangerous World* , because you hear more about what he's talked about today.

And Jim, I want to thank you so much for your time, sharing your knowledge, your passion about both managing and controlling risk.

Jim

I have really enjoyed the conversation. Thank you very much. And we really hope that it helps the people who are involved in hazardous environments.

Jeanne

That's what it's all in service of. Absolutely. And until next time, I hope everybody stay safe or maybe more appropriately after this message, operate excellently. Thank you for your time.