RS/RM2
January 8, 2013

John Krige,
Interviewer

KRIGE: This is an interview with RS/RM2 at Georgia Tech on the 8th of January, 2013, about his experience with ITAR.

So, the first thing I'd like to speak to you about is your experience with chemical samples which I understand you were exchanging with a foreign national, when it came to your attention that this exchange was controlled or under some form of export control. You were surprised and you began, therefore, to enter the intellectual world of export control. Is that accurate?

RS/RM2: It's somewhat accurate. So I would say that I've been working collaboratively with people outside of the United States for a very long time. I would send samples, and most of the time I would just, back in the day, perhaps ignorantly, put them in a FedEx envelope and put on a waybill that says "Chemical sample, research sample, no commercial value."

When I came to Georgia Tech, I think things were roughly the same, and then there was an evolution, and I took the decision that every sample my group sent, no matter where, was going to go through Environmental Health & Safety because I could not distinguish between what was a considered to be a hazardous sample, what was a nonhazardous sample. So everything had to be packed such that we did not run afoul of various government rules about shipping.

So then as soon as that happened, EH&S, before they would send anything, would send it to, I believe, some set of folks in GTRC to see if there were any issues relating to contracts, specifically do we need a materials transfer agreement,. And so I worked with them to develop a generic materials transfer agreement form, and that was fine in the United States when you were sending things out. GTRC were asking the faculty to specifically sign off on the fact that none of the things you sent were controlled by either ITAR or the EAR.

So I made myself aware of what those things were, and I assumed that, by definition, everything that I would be concerning myself with, if it was covered by anything, would be covered by the EAR, inasmuch as the things that I was working on were related to photovoltaic materials and not specifically design for military applications.

So then they said, "Well, you need to determine whether it's covered by any of the things on the CCL," Commerce Control List. I can't remember if someone pointed something out to me or I found it, but there was something in the CCL that was written so poorly that one could not—I mean, I have it on my computer. Essentially what it said that there are controls on materials that are specifically designed for absorbing light between—they gave it in hertz, but I'll convert it to nanometers—700 nanometers and 2000 nm, that are not transparent in the visible. So I had to certify that this did not fall into this category, but there was no explanation of what it meant by absorbing, specifically designed for absorbing, transparent, what path length, what form, what anything, and yet I was told that I could be held legally accountable if I did not answer the question truthfully.

I said, "Well, if the definition has no specificity, I can't make a determination," and that was the beginning of my sojourn, which is about six years now, into export control issues.

So we ended up contacting the Commerce Department to get some guidance and working with a guy who was pretty uncooperative and from my perspective not knowledgeable about the chemicals we planned to ship. It took substantial time without any real benefit.

In fact, on one trip, JG and I went to Washington to meet with the people who literally do the technical evaluation about the concerns of this, all the different aspects, ITAR, EAR. And we were all in a room together, and they all said, that they didn't see any real issues with the materials I planned to send. But this guy from Commerce wouldn't—

KRIGE: Yield.

RS/RM2: Wouldn't yield and wouldn't make a determination, and then he basically said, "Well, you need to send this back to State so they can do a jurisdiction." And we never got it sorted out. Around that time , I believe, JG saying, "You know, their forming a committee called ETRAC, and you've had a lot of experience with these issues. You know some of the issues that Georgia Tech is dealing with." So they ended up nominating me to be on ETRAC, and then I spent four years on ETRAC, where I worked with the Commerce Department, who I will just mention, with the exception of this one guy, were, in general very committed, people who wanted to try to make the situation better.

So you were asking me—I think one of the questions, "Are you still affected by this?" So the answer is that one of the big issues in making the determination as to whether something was or was not included under the definition or is under the FRE, Fundamental Research Exclusion, there were two issues with that. One issue is that the definition of "in the public domain" within the EAR and within ITAR were not completely identical, and, indeed, within two parts of the ITAR they were not identical. So under the FRE, work which is normally in the public domain, which includes fundamental research with the intention of publishing, is considered in the public domain if you had the intent of publishing. In one part of ITAR, it said that. In the other part of ITAR, it actually said "is published."

KRIGE: I remember.

RS/RM.: And we spent a lot of time working with the Assistant Secretary of Commerce, (who was on an interagency task force, who were actually rewriting the regulations) to make our case that "intention to publish" should be the definition of public domain because ~~as~~ that had huge implications for the FRE.

KRIGE: Say I am determined to maintain my work in the public domain. So I'm simply going to say, "I intend to publish in the public domain."

RS/RM2.: But that doesn't mean that you're not running afoul of the ITAR regulation.

KRIGE: But you said, the FRE—I can build an FRE wall around me by virtue of my intention, in the way that you've just expressed it.

RS/RM2: You can under the EAR, but in ITAR there were two definitions which were not self consistent.

KRIGE: I understand that. I understand that.

RS/RM2.: So if you and many people, like folks at MIT, took the approach that we're going to just read the more liberal reading and say then they didn't worry about the inconsistency, "Georgia Tech is more conservative and says we don't really know, which is the correct and operative interpretation and this gives us heartburn. Which is the correct one? So we had to advocate to make sure that the more liberal one was the one that was actually incorporated into the language.

The other thing, and I got into a relatively heated debate with folks from the State Department, was this question of "specifically designed for." I don't know whether you have any sense of what that means and what a hot-button issue in the government that has been for years. Because I asked people explicitly. I said, "What does 'specifically designed for' mean?" No one could tell you.

KRIGE: Well, what kind of cut is it trying to make?

RS/RM2.: My understanding is that it's trying to distinguish whether you're trying to give something a set of properties for a specific application that is unique to that application, so that you're taking a widget and there is some defense article, and you're trying to modify the widget in such as way that it works for the specific defense application, as opposed to the fact that it just happens to have some properties, and, oh, by the way, it could be used for this application. There's a lot of debate. There was a lot of debate. We spent the better part of a year working with people on this question of "specifically designed for," and it went round and round and round and round because if not worded precisely, certain important things could be excluded or included inadvertently, "specifically designed for," three words.

KRIGE: I see the problem, but say I specifically design a tile for the nose of the Shuttle, and I say, "It's a civilian technology. It's a civilian spaceship."

And somebody says, "Oh, it would be absolutely perfect on a fighter plane."

But I say, "I didn't specifically design it for that. Therefore, I'm covered by FRE." So isn't this another way of dodging out of the regulations by using my own interpretations of what it means to enable me to avoid them?

RS/RM2: So my position is that it does, as long as you don't get close to a very sensitive technology of concern.

KRIGE: It's as arbitrary as that.

RS/RM2: So here's the question, You have your definition of "specifically designed for." Then you do something and you may inadvertently leak information that the USG considers sensitive, and they have their definition of "specifically designed for." The reason that I got into this—I could have just ignored this stuff, but I actually am the kind of person who sees an issue and feels that you can ignore it or you can confront it. I think that the issue of ignoring things works as long—what was the most recent—there was a recent disaster. I mean, just take Hurricane Sandy. The situation that could cause massive flooding in New York existed forever, and nothing happened and everyone was happy until something happened. So it worked until it didn't.

KRIGE: So you're on the preventative side.

RS/RM2.: So it's on the side of do you bury your head in the sand and hope that nothing happens, or do you try to get clarity to find out what's going on, or confront people with the basic inconstancies. In my view, you can't have people living by regulations, signing off on the fact that they are, or are not in compliance when the language is so ambiguous that no one, including people at the State Department and the Commerce Department, knows what it means. That's just unacceptable. It's fundamentally unacceptable so I brought this stuff up.

In fact, we did a report that's never been published, but in that report there is a phrase that I coined. It's called the "red wine dilemma." The "red wine dilemma" is that if you take the definition my polymers could have fallen under, absorbing between 700 and 2000 nanometers, not transparent in the visible, without any definition for what the absorbance is, so you can't determine if your sample has an significant absorbency.

Red wine has water, water has overtones at 1.5 micron roughly from OH stretches, and I can see it, so it's not transparent, in the visible, and it absorbs on the infrared. Therefore, if you don't know what "specifically designed for" means and we don't know what absorbing means—

KRIGE: And transparent, of course.

RS/RM2.: —essentially, you could not sign off that red wine is not controlled under this provision. There's a problem with that. There's a fundamental problem with that, and I felt that it's not right to put scientists in the position to have to interpret "specifically designed for," or make a decision as to which of two definitions that are not self-consistent within the same set of regulations is operative. That's not what we're paid for. First of all, we're not lawyers, and there are people who are lawyers who do this for a living. Secondly, if you look at the liability, it's not an institutional liability; it is a personal liability. You can go to jail. You can be fined.

KRIGE: One of the things that's important in what you're saying is whenever I ask other people, whom I've asked mostly people coming at this from the procedural angle, how do you decide whether something satisfies FRE or not, they always say you look at the contract, and the way in which the contract is written will decide apriori whether or not it is FRE or not. And I always say but surely it depends on the knowledge that you are producing, the kind of knowledge that you are producing. How does this question of the knowledge that you're producing match with the contract that you have? The work that you were doing, your polymers, was that under contract to a particular agency?

RS/RM2: Yes, it was under contract to the Office of Naval Research, but it was 6-1 research (i.e. fundamental research). There were no publication restrictions, no foreign national restrictions. But the problem is, is that the Department of Defense and the State of Georgia has zero authority to make determinations about ITAR or EAR.

KRIGE: It's the State Department and the Commerce Department.

RS/RM2: It's the State Department and the Commerce Department. It's their jurisdiction.

KRIGE: So they can just say, "Do what you wish."

RS/RM2: "Do what you wish. As far as we're concerned, tell everyone you want." I mean, it's like, in a very, very crude sense, the State of Washington says, "Go smoke marijuana." The federal government says, "Don't." Now, whatever the State of Washington does doesn't preclude the federal government coming in and prosecuting you. So whatever the Department of Defense says doesn't stop the Commerce Department from saying, "I'm sorry, but you are in violation of Commerce Department regulation. So you can take that attitude and you can hope— as I said, as long as everything is fine—

KRIGE: And how do things become un-fine? I mean, here you are, you're working on this. We understand that this particular case, purely because you thought there might be a hazardous chemical—

RS/RM2: So this requires knowledge, and I think that the value that I got out of being on ETRAC was developing a better understanding of this. The scientific and business communities were very fortunate that Gates, who co-Chair of a Department of Commerce committee called DEAC, which was the Deemed Export Advisory Committee

KRIGE: This is Robert Gates.

RS/RM2.: Yes, the former Secretary of Defense. So he was co-chair of a committee called DEAC, and the other co-chair was the former CEO of Lockheed Martin, Norm Augustine, and DEAC came through Georgia Tech and a few faculty including myself had a chance to chat with the committee.

RS/RM2.: One of the recommendations of the Deemed Export Advisory Committee is that the Commerce Department needs to form a new committee, which was ETRAC to actually deal with some of these issues. One of their mandates was to determine was there were issues that needed to be addressed, and the answer was yes. Our task was, go suggest procedures and guidelines to help Commerce address with the issue.

KRIGE: What is *the* issue?

RS/RM2: The issue at the time that we were originally supposed to work on was the deemed export control issue, which is even more muddled. A deemed export is a transfer of information or material disclosed to a foreign national who is in the US, but who can cross borders in an unrestricted manner. Such a transfer is "deemed" to be an export, as it can have the same final impact as if you transferred the material or the information outside the US.

KRIGE: Exactly.

RS/RM2: So the question then is if I'm sitting here, I don't know whether you're a U.S. citizen or not.

KRIGE: Exactly. I'm a permanent resident, by the way.

RS/RM2: Doesn't matter. I don't necessarily know, and I don't know whether something specifically designed for, and I don't know whether the definition of "in the public domain" or "intended to be in the public domain" is correct. So can I sit here and talk to you about what I'm doing? That worries folks at a place like Georgia Tech where we've got many foreign nationals.

I have a guy who was supposed to visit me but in the final analysis was denied a visa to enter the US since he was coming from a designated country. If he came and I transferred information to him it's potentially a liability for an institution like this to have that muddiness in regulations and, ultimately, an inability to get anyone from any agency to actually make a definitive statement of what this means.

So what can cause something going afoul? Well, so from my work with the Commerce Department, by and large, I think for there to be major problems, major, there has to be intent. There has to be intent to work around regulations. If you inadvertently work around the regulation, they'll slap you on the wrist, they'll tell you to go put various procedures in place, they may give you some fine, but they are not shut down Intel because of an inadvertent violation.

KRIGE: It's ongoing.

RS/RM2: There are so many regulations and it's changing, but there are so many regulations and these places are so huge, , it's nearly impossible to make a system perfect. Intel works really hard to do so. They have a whole Office of Export Compliance, and one of the things that we had to do some sort of analysis of, which was very, very difficult, is what is the cost of export control to the U.S. economy. If you evaluate the fact that a person, who was a foreign national was not hired for a job, may have made the next critical invention, how do you evaluate ~~what~~ the impact of what didn't happen because you were fearful that something might happen in term of a violation of export control regulations? And that is part of the issue that concern places like Georgia Tech, , Some places just say, "well, we just won't take any contracts that say this, that." It's not worth the hassle.

KRIGE: The risk.

RS/RM.: A few years ago there were faculty interested possibly developing a collaborative program with a university in, China, where they had an Optics Laboratory. Ultimately, there were too many concerns about various people at the institution, where folks just said, "There may be an upside, but if you think about all of the potential downside, there's too big of a risk." So then there is potential research that could have been done. It just wasn't done, and that's what happened, in fact, in this case.

So eventually what happened is that the way the Department of Commerce began recrafting the language to make the definition of "public" self consistent, and what they did on "specifically designed for" made it sufficiently clear as to what it meant, that I could say that my work was not specifically designed for something.

KRIGE: And that's liberating for you.

RS/RM2: Yes, that was very liberating for me.

KRIGE: Are those resolutions available online? Can I find those documents?

RS/RM2.: They may have been already published in the federal register because they were going through the last iteration quite some time ago.

KRIGE: So ETRAC is a committee that was set up to basically try to resolve certain linguistic ambiguities in the regulations.

RS/RM2: No, actually, it wasn't set up to do that, but what ended up happening was that Secretary Gates and Secretary Clinton and President Obama and I'm not sure who else took the decision that the export control regulations that we had were not fundamentally working in the best interest of the United States, that the downside of how they were working and the viscosity that they caused was giving the US a competitive disadvantage with other countries. There were things where we would not be able to do that were required to compete for building satellites for other countries, And our satellite companies are losing business to foreign companies, and that's not good for the United States for example.

So there are people who, when they look at the tradeoff between restrict and don't restrict, see the world as a very scary place, and I have heard enough things in these briefings that the world *is* a scary place. Very bad things are happening and you can read about many of them in the public domain.

KRIGE: But, of course, these people eventually get this anyway. I mean, that's always the argument, or much of it, they'll eventually acquire it if they wish to.

RS/RM2.: I'll touch on that very, very briefly, but the thing that I'll mention is they tend not to look at the benefit. So you have a risk-benefit analysis, where you only have people who are looking at the risk and you don't actually have some other people within the agencies who say, "Well, actually, you need to balance that versus the benefit." So we had to try to develop some sort of protocol for weighing risk versus benefit that would help them say, control/don't control. That was one of our tasks.

KRIGE: The weapons labs did a good job on that, actually, balancing scientific openness against national security.

RS/RM2: So you have the whole issue of classification. If you want to classify something, why do you classify—now they have all these things of—and this H5N1 case sort of exemplifies this. I don't know how much you've read about that.

KRIGE: No, tell me a little about it.

RS/RM2: The H5N1 case involves a group in the Netherlands and at Wisconsin had been tasked with essentially taking a virus that was quite deadly and making it transmissible in mammals And this was sponsored by, I believe, the NIH. The idea was we don't understand how these viruses mutate to go from not being transmissible in mammals to being transmissible in mammals and this happens, and if you don't know how to combat it, then we're at risk. So they said, "We need to understand these processes." So these guys went and they did that, and it turns out that the stuff was really not very transmissible. They had, I forget, I think it's a ferret, and that if you literally spray the stuff down the lungs of a ferret, you can kill the ferret.

KRIGE: Okay. It's going to be that direct.

RS/RM2: But it made a nontransmissible lethal virus transmissible and lethal, so when this stuff hit the news, there was one paper in *Science* and one paper in *Nature*, of course, about how to make deadly viruses transmissible.

KRIGE: It becomes a biological weapon.

RS/RM2: And there was an awful lot of concern raised, an *awful* lot of concern, and there is still a lot of concern raised about how to deal with this, and committees within the USG and within the academic community were formed to make recommendation about how to deal with circumstances like this. They tried to prevent or at least delay publication of the papers. After things died down again, they actually did publish both of them, but a lot of the stuff was first, carefully scrutinized. *Science* and *Nature* held off on it for a while. (see for example http://www.nature.com/news/specials/mutantflu/index.html)

So the point is, is that I think we live in an environment where there are risks. We live in an environment where there are people who are very, very aware, of what can literally go on in the mountains of Afghanistan or some other remote places, but in all warfare, if you look at the hydrogen bomb—I just watched a very interesting show called *Trinity and Beyond*. Did you ever see that?

KRIGE: No.

RS/RM2: The whole issue is not "it's eventually going to get out there"; it's a question of staying ahead of the adversary.

KRIGE: Exactly.

RS/RM2: It is like any kind of market thing. People are going to be able to retro-engineer. The question is who's first to market. And so the argument of, well, it's going to get out there anyway doesn't hold much credibility with people who are threat-averse because their whole thing is, but for now we have a strategic advantage. Our goal is to keep our strategic advantage as long as we can, be it either military or economic. And it may hold things off for a certain period of time, which is our window, at which point we're not just sitting by ourselves.

KRIGE: But we're moving further.

RS/RM2: We're moving further. And so it's always where you are relatively, and time is a very, very important factor. So if you can buy time, then that has tremendous value.

KRIGE: Absolutely.

RS/RM2.: And we're going through that right now. I mean, there is stuff that we just don't sell to China and there's stuff that China doesn't sell to the United States.

KRIGE: Which brings me to my other question. I mean, there's been this move towards tightening up these regulations.

RS/RM2.: But the reality is, it's not in terms of general export control regulations. The interagency task force is actually doing things to make it less constraining than it was before. Specific things may be tightened up though.

KRIGE: Right. So let's go back to the previous point. I'm taking the longer view. This has really only happened over the last ten years, right? I mean, these ITAR regulations have been in place for a long time. The munitions control list has been there for years

RS/RM2: Yes.

KRIGE: And EAR has been there forever, from the fifties and sixties.

RS/RM2: I think a lot of sensitivity to this export control particularly as it pertains to terrorism really got heightened post 9/11.

KRIGE: And what brought universities into the picture? I mean, one can understand that industries are in the picture because they are working close to the market. What brought universities and university research and your work and that of theirs work under the aegis of this?

RS/RM2: I would say that, on some level, it is an unintended consequence. So for example the question is why is it that stuff that absorbs between 700 -2000 nm, that's not transparent and in the visible is there at all is restricted?

KRIGE: Good point. Where did it come from?

RS/RM2: I think that it came from stealth technology. Now, there are specific things in stealth technology that we're concerned about [...]. So if you have something that's really important like this where you don't even want your adversary know what concerns are you, what you do? You throw a big bedsheet over it. Now it's all covered, and the adversary doesn't know what's important and what's not important. Well, when you go throw the bedsheet over it, okay, you might have thrown it over my dog's chew bone in the process. You didn't have any particular interest in his chew bone, but you did have specific interest in, not letting someone know what that was of interest to you.

So what happens is people write these regulations. I don't think that, in general, they write them maliciously, but again, this is the risk. It's a scary world out there. People ask, do you realize what could happen if someone got that piece of information? We don't want them to get that piece of information. We don't even want them to know what that piece of information is. We cover it. "Oh, your thing fell into that. Well, that's unfortunate. But, you know, we have people who are trying to do really, really, really bad things to us.

KRIGE: This is post 9/11 then, much more than anything else, because, of course, the whole Strom Thurmond Act, the whole thing about that, satellites, that all started under Clinton. It's China and post 9/11 telescoped together.

RS/RM2: There are different things. There was the Cold War mentality when we really only had to deal with other "superpowers" . But now there's the antiterrorism aspect of things, and there are a lot of technologies. You ever hear of Stuxnet?

KRIGE: Of course. Its taught in my class.

RS/RM2: Okay, and then there's the new thing after Stuxnet.

KRIGE: FROST I think it was called.

RS/RM2: Stuxnet's amazing.

KRIGE: It's extraordinary.

RS/RM2.: Now, I'm sitting in an open ETRAC meeting with a computer science professor from a well known university and we're discussing Norton antiviral utilities and the fact that there are people thinking about restricting the export of antivirus programs. And this professor from this university notes that this is all public. It was in the public domain so the professor said, "Why would you ever want to put restrictions on antiviral stuff? We don't have people infecting our stuff with viruses." And I could see one guy from a national lab and one guy from the intelligence community getting very uncomfortable about this line of discussion — it was pre-Googling Stuxnet. So there are all of these technologies where, in your world, you'd think why in god's name would you control this, and in their world they know exactly why he would control it.

KRIGE: So much has become dual-use, so much more than what you used to do or what used to be done on campus.

RS/RM2: The people that concern the USG are very creative people, and they fundamentally, they *fundamentally* understand the concept of asymmetric warfare.

KRIGE: Of course. That's why they're so good at it.

RS/RM2.: That's why they're so good at it and that's what they have to do. So what that means, right, is that your concept of, well, it's clearly dual-use technology, is for them something that could very specifically be designed for doing some very, very bad things. We have people who we pay to stay up at night and worry about that, and they do. I mean, the amount of intelligence that we have, I can't even begin to imagine. There's an awful lot of stuff and people are worried, and there are very bad people out there, very, very bad people out there.

The other thing is, do you know what the U.S. tolerance for a terrorist attack is—you lived in Britain,. You had the IRA, and Britain has gotten used to living with terrorists, ? It was a fact of life.

KRIGE: When the IRA was really active, yes.

RS/RM2: In my view, the United States population has no tolerance for a terrorist attack.

KRIGE: Right. That is true. That's an incitement to war.

RS/RM2.: We have a populace that wants us to balance the budget, cut taxes, and not decrease spending. That's the populace that we have. And then we have people in political office [who estimate] that if we want to commerce and education as open as everyone wants it to be, we're going to have to accept arbitrarily say a 0.037 percent chance of a terrorist attack. How do you think that's going to go over?

KRIGE: Right. That's suicide, political suicide.

RS/RM2: It's political suicide.

KRIGE: We're trying to square the circle. We can't.

RS/RM2.: Yes, so,, what they're trying to do now is as much as possible, I think, quietly finesse the circle. But there is that incredibly dynamic tension of people realizing that there's risk, people realizing that we can't eliminate risk. The population—

KRIGE: Wanting a risk-free environment.

RS/RM2.: Think about the number of times you've taken your shoes off to get on an airplane. Okay? One guy tried that.

KRIGE: Exactly. But that's always closing the gate after the horse has bolted. All of these measures are post somebody having done that, always.

RS/RM2: And that goes to that issue that you raised earlier of, well, you know, how do you know when something bad has happened. And the answer is, many times, the horse has left the stable. And that's when the paranoia comes. The paranoia comes, because we don't want to find out, because if we find out, it could be really, really bad.

RS/RM.: And we do have people who have a cavalier attitude, who have exactly the attitude of, "Well, you know, I'm free and clear,", --Fundamental Research Exclusion,.

KRIGE: It's a certain kind of scientist, right? I mean, science is something that I do in a university precisely because I do not want to work in an industry. I do not want to be troubled with proprietary knowledge.

RS/RM2: People saying "I'm not going to worry about it."

KRIGE: It's about career and priority, priority claims. Yes, of course.

RS/RM2: Yes, I don't believe that this is sort of like an altruistic philosophical belief. I think it was, "I'm going to get this stuff done as quickly as possible."

KRIGE: Get it out there to get my credit for it.

RS/RM2: Yes.

KRIGE: Just one last question. Again, why universities? Is it the increasing the number of foreign students that is also part of the reason why universities are in the firing line?

RS/RM2.: You just need listen to the nightly news to understand that we are under cyber attack. I don't think that our perception of this is paranoia.

KRIGE: Right. Because you did use that word earlier, and some people think all of this thing is completely exaggerated, over the top, unnecessary. Yes, of course we have to cover our butts as best we can because of all these ambiguities, but basically, at bottom, there's not a lot of danger of much stuff leaking. On the other hand, there's a lot of talk about, well, there's a huge danger, a lot of this stuff leaking, and there's a huge research community out there determined to take that and do whatever they can with it.

RS/RM2: I believe that there are people who know a lot more about this than I do and you do. I suspect that if you and I spent thirty minutes Googling cyber espionage, industrial espionage, we could probably find, in the public domain, stuff that would make you think about risks associated with having a huge population of foreign students,

KRIGE: It is ironic, isn't it, that as we slash budgets and, therefore, as we need to recruit more and more foreign students, we're in this very—so that's part of our business model now, I'm sure, to have a large foreign student contingent paying foreign student fees. We are actually creating an incredibly dangerous situation for ourselves.

RS/RM2: And there are people who are completely aware of that and there are people who have very deep pockets, and if it costs that much to do business—

KRIGE: They'll do it.

RS/RM2: I believe that that is true. So, you know, it's one of these things. The whole area's one of these things where if you think about it too much, you just want to go [demonstrates]. But we have people who think about this all the time, okay, and, again, I've just met some of them. And there are some people who you listen to them and they just sound like god and country, da, da, da. But a lot of these people are just very matter-of-fact about what they know and they don't seem extraordinarily politically motivated, okay, but they do have a job.

RS/RM2: ETRAC was able to provide input director to the Assistant Secretary of Commerce . He was a lawyer that worked on export control issues and represented universities, so he knew, and he's sitting there sending email to the various advisory committees including ETRAC, "What do you guys think about this?" and "I need it back in twenty-four hours because we're going to submit this—." So it was very interesting to have the opportunity to be at least providing input, and we could provide input directly to the guy who is writing the regulations. That doesn't mean that he was taking what we said.

KRIGE: But still.

RS/RM2: We at least had the opportunity to chime in when we thought something was significant, and on this issue of "specifically designed for" and on the issue—I don't know if you know the seven "or's."

KRIGE: No.

RS/RM2: So if we have a piece of instrumentation that's controlled, it used to be if the person was able to run it, and this, and this, and the operating, and—

KRIGE: I remember that.

RS/RM2: They were going to change that 'and' to 'or.' So it went from a person who's using the clean room essentially had to be able to take the thing apart and repair it in addition to everything else before—

KRIGE: It was restricted.

RS/RM2: Yes. So there were people who were saying, "Change it to or." You can't do that.

KRIGE: Right. I've seen that. Yes, now you've got seven or's, or six plus one, I think.

RS/RM2: I don't remember what—

KRIGE: I think it's in the training schedule.

KRIGE: You'll find the ETRAC minutes and reports in the public domain?

RS/RM2: No. Well, yes and no. Our first report was never published. It was submitted to the assistant secretary and then they did what they did with it, but our deliberations, anyone can go to any of the meetings and record everything.

KRIGE: But I can't Google "eTrack committee meetings" and get your minutes—that's not possible—or go to the Department of Commerce website, which I do quite a bit, but I haven't seen that.

RS/RM2: I don't think so. I mean, there was the designated officer who would take notes furiously, but I don't believe that that was for public consumption. I think that their attitude was, if the public wants to know, they can come, and if a reporter wants to record everything and transcribe it and put it all on the web.

KRIGE: Yes, sure, of course, of course, very technical, but necessarily so, of course, necessarily so.

RS/RM2: Okay, so when's your report due?

KRIGE: Oh, no. This is just the start of the study.

[End of interview]