IMPLEMENTATION OF THE IRAN NONPROLIFERATION ACT OF 2000: IS LOSS OF LIFE IMMINENT ON THE INTERNATIONAL SPACE STATION?

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IMPLEMENTATION OF THE IRAN NON-PROLIFERATION ACT OF 2000: IS LOSS OF LIFE IMMINENT ON THE INTERNATIONAL SPACE STATION?

THURSDAY, OCTOBER 12, 2000

HOUSE OF REPRESENTATIVES,
COMMITTEE ON INTERNATIONAL RELATIONS,
Washington, DC.

The Committee met, pursuant to call, at 10:18 a.m. in Room 2172, Rayburn House Office Building, Hon. Benjamin A. Gilman (Chairman of the Committee) presiding.

Chairman GILMAN. The Committee will come to order. We received preliminary reports this morning that at least four American sailors were killed and 12 are missing in a terrorist attack on the USS COLE in the Gulf of Aden. We think of ourselves as a nation at peace, but there will always be those who, for misguided reasons of their own, seek to inflict harm.

Our hearts go out to the families of those servicemen who made the ultimate sacrifice in the service of our Nation. So let us take a moment of silence as we begin our hearing today.

Thank you. Our hearing will come to order. I called this hearing in order for Members of Congress to hear firsthand about a remarkable legal interpretation of the Iran Nonproliferation Act that apparently has been adopted by the National Aeronautics and Space Administration. This interpretation threatens to eviscerate this important new law that was enacted with great fanfare just 7 months ago.

As everyone knows, the problem of proliferation from Russia to Iran of dangerous weapons technology, especially missile technology, has been with us for many years now. The Clinton Administration tried repeatedly in the past to do something about it, but the results were invariably disappointing. In exasperation, a number of us in the Congress felt compelled to act. Here in the House, I joined with our distinguished Ranking Democratic Member, Mr. Gejdenson, and the distinguished Chairman of our Committee on Science, Mr. Sensenbrenner, to introduce the Iran Nonproliferation Act. The lead Senate sponsors of this measure included not only the distinguished majority leader, Mr. Lott, but also the man that Vice President Gore has chosen as his running mate, the junior Senator from Connecticut, Mr. Lieberman.

The Clinton Administration did not like our legislation. In fact, they threatened in writing to veto it, but we were not deterred. The Gilman-Gejdenson-Lott-Lieberman bill passed the House unani-

mously, and then it passed the Senate unanimously, and eventually President Clinton signed it into law on March 14th of this year.

Since that time a remarkable thing has occurred. The Administration has gone about its business as if the law didn't exist. In essence, the law only requires two things: First, it requires the President to report periodically to Congress about proliferation to Iran from other countries. Second, it prohibits NASA from buying new goods and services from Russia for the International Space Station until the President determines that all of the approximately 400 entities under the Russian Aviation and Space Agency have gotten out of the business of proliferating to Iran.

The law's reporting requirement has been utterly disregarded by the Administration. The first report was required by law to be submitted to Congress no later than 3 months after the date of its enactment, or by June 12th of this year. The second report was required by law to be submitted to Congress no later than 6 months after the date of enactment, or by September 14th. Neither of these reports have been submitted.

The State Department has a number of excuses for disregarding these report deadlines. They have been busy doing other things. They have had a hard time figuring out how to write the report. Also, it is a lot of work. Most recently, they sent us a letter saying they are going to try hard to finish the first report by December 1st, or 6 months after the due date. But they are not making any promises.

Obviously the Administration has not treated compliance with the reporting requirements of the Iran Nonproliferation Act as a priority. In fact, after the bill was enacted they waited for two full months to get around to asking the CIA to collect the information they would need to write the first report. That information apparently was not given to the people who will actually write the report until just last month. And when we asked, we were told that not a single person within the executive branch had been put to work full time on complying with this law.

And we have now learned that NASA is considering implementing the law in a way that will make the State Department's record look like a model of compliance. The law is very clear that NASA cannot make what are called, "extraordinary payments in connection with the International Space Station," to Russia until the President gives all entities within the Russia Aviation and Space Agency until they have a clean bill of health on proliferation to Iran. The President cannot even consider doing that now because the State Department has not written any of the required reports about what these entities are doing. There is, however, an exception in the law for crew safety. If the President notifies Congress in writing that an otherwise prohibited purchase from Russia is, "necessary to prevent the imminent loss of life by or grievous injury to individuals aboard the International Space Station," that purchase may be made notwithstanding the law's prohibition.

This exception was inserted into legislation by a Member of our own Committee, the gentleman from California, Mr. Rohrabacher, during the Science Committee's markup of the bill. Hopefully in a few minutes Mr. Rohrabacher will be able to describe to us his in-

tentions in writing this exception. My own understanding was always that this was an exception that was to be available to NASA in emergency situations only. NASA, however, has come up with its own interpretation of what Mr. Rohrabacher intended, which is considerably broader than an exception just for emergency circumstances.

NASA apparently believes that the purchase of anything that arguably enhances safety will fit within this exception. If NASA's interpretation is allowed to stand, I fear that virtually nothing will be left of the law's prohibition on extraordinary payments in connection with the International Space Station. I had hoped that we in the Congress had concluded our work in this area when we enacted the Iran Nonproliferation Act earlier this year, but regrettably NASA's present course may leave us with no choice but to legislate again on this issue. And if we are forced to do that, we may also have to address some new areas of concern that are now under investigation by the NASA Inspector General, such as NASA's subsidization of other entities in Russia that have a history of producing and proliferating weapons of mass destruction.

I am now pleased to recognize our Ranking Minority Member, Mr. Gejdenson, for any comments he may have. Mr. Gejdenson.

Mr. GEJDENSON. Thank you, Mr. Chairman. We are always in a little bit of a quandary in dealing with the Russians. Obviously we are concerned about their proliferation. On the other hand, if we exclude their participation in every commercial venture with the United States, they are only left with commercial ventures with rogue nations. So it is a very difficult balance obviously.

Clearly, though, no Member of this Committee would want any Federal agency to make a decision that would put our people in jeopardy when traveling in space. And it is clearly also the intent of the legislation that if it is necessary for the safety of our men and women who go into space that the agency is perfectly legally within the law to purchase the elements they need from the Russians. Maybe it is a lesson for the Congress. Maybe we ask for too many reports too often and maybe we need to pick fewer reports that we want to be more serious about with the State Department.

Thank you, Mr. Chairman.

Chairman GILMAN. Thank you, Mr. Gejdenson. I am now pleased to recognize——

Mr. SHERMAN. I wonder if I could make a brief statement.

Chairman GILMAN. Yes, but first I want to recognize Mr. Rohrabacher. The gentleman from California.

Mr. ROHRABACHER. Thank you, Mr. Chairman, and thank you for your leadership, Mr. Chairman, in this and other issues that have meant so much to our national security. Chairman Gilman has taken the security of this country very seriously and especially on this issue of proliferation of deadly weapons to countries that wish us harm. I think it behooves all of us to take this issue very seriously because people's lives are at stake.

We started this hearing having a moment of silence for five dead American military personnel. This is a very serious matter, and I am afraid that what we see is that our government that supposedly has the responsibility of watching out for the safety of our people

has again shown itself either incompetent or unwilling to meet that responsibility, and that is very, very sad, shameful.

As chairman of the Space and Aeronautics Subcommittee and author of the crew safety exception amendment to the Iran Nonproliferation Act, I have taken a keen interest in ensuring that the law is properly carried out. Sadly, Mr. Frankle's testimony today leads me to believe that NASA is not properly carrying out the act as clearly intended. When I wrote the amendment that became paragraph (f) in section 6, my intention was to address those emergency situations in which the Russians insisted that we pay them to resolve an immediate threat to the lives of our astronauts while on board the International Space Station. I said so at the time, stating, quote, emergency payments are allowed. Let me repeat that, emergency payments are allowed, end of quote, and then the quote again, we need to do this just in case there is a life threatening emergency, end of quote.

Working with attorneys on the Science Committee and in the Office of Legislative Counsel, I crafted the amendment specifically and very narrowly to address just those emergencies, which is how Chairman Sensenbrenner characterized the amendment during the floor debate. Nobody questioned my emphasis on the emergency aspects during the Subcommittee markup, consideration by the full Committee on Science or during the House passage of this bill.

Mr. Frankle, I was there, I know what I said, and I know what I meant and I know what this amendment states. I don't know how we could have made it any plainer. I have to assume if someone is coming up with another interpretation that this is not being done in good faith.

Your testimony selectively quotes myself and Chairman Sensenbrenner to create the false impression that the Science Committee meant to give NASA the ability to bypass our nonproliferation efforts. Nothing could be further from the truth. Your interpretation turns the entire legislation upside down and guts it of its meaning and I expected better from NASA, America's space agency, than that.

Mr. Chairman, I believe the political appointees at NASA are abusing the exception that I created for America's space agency. Had I anticipated this abuse, I would not have offered the amendment now being misused. This is a very serious matter. People's lives are at stake. Today we have five dead sailors to testify here before us of the importance of our nonproliferation stand in that part of the world. Perhaps the Committee should consider repealing this exception if we keep seeing members of this Administration trying to misuse it through misinterpretations.

With that, I yield back the balance of my time.

Chairman GILMAN. Thank you, Mr. Rohrabacher. The gentleman's time has expired. Mr. Sherman.

Mr. SHERMAN. Mr. Chairman, I do think there is an emergency situation. There is an emergency threat to NASA's credibility before Congress. I have never seen a situation where someone can just ignore the word "imminent" that is right in the statute, ignore its plain meaning. By this definition any time NASA wants to do anything it just says, well, that is necessary to prevent a loss of

life because anything that enhances whatever we want to do will lead to more successful and safer space shots.

I have supported this Administration on an awful lot of votes. It is embarrassing, frankly, to be on this side of the room. We also have a situation where we as a Committee are faced again and again with whether to put a waiver into a bill. And we are told give the Administration some reasonable leeway. And this interpretation is not just an attack on NASA's credibility, it is an attack on whether there should be waivers in any of the legislation that we pass. And finally it is an attack on whether Congress can by statute direct the Administration and the agencies to do anything or whether the statute will simply be ignored with a fig leaf so small and so thin that it leaves nothing to the imagination.

I am confident that if this interpretation is not reversed that Congress will respond very quickly. And I have been an intense supporter of the space program and I think that this interpretation certainly undermines that.

Thank you.

Chairman GILMAN. Thank you, Mr. Sherman. We are pleased to be joined today by the gentleman from Washington, Mr. Nethercutt, who is a Member of the Science Committee. Welcome. Did you have an opening statement?

Mr. NETHERCUTT. Thank you, Mr. Chairman. I would just say thank you for allowing us on the Science Committee and the Space and Aeronautics Subcommittee to join this Committee of yours. I am delighted to participate in the question and answer portion.

Chairman GILMAN. Thank you for joining us. We will now proceed with our table of witnesses. We are pleased to have two distinguished witnesses from the National Aeronautics and Space Administration. Edward Frankle is NASA's General Counsel, having held that job since 1988. He served previously as NASA's Deputy General Counsel. He is a graduate of the Georgetown University Law Center and also worked as a lawyer at the Selective Service System and the Department of the Navy. Welcome, Mr. Frankle.

Mr. Frankle is joined by Michael Hawes, NASA's Deputy Associate Administrator for Space Flight Development. Mr. Hawes currently is responsible for directing U.S. participation in the International Space Station project. He is a graduate of the University of Notre Dame and the George Washington University and he spent most of his career in a variety of positions with NASA. Welcome, Mr. Hawes.

Whoever wishes to proceed may go first. Mr. Frankle. You may put your full statement in the record and summarize, or proceed as you deem appropriate. Please proceed.

STATEMENT OF EDWARD A. FRANKLE, ASSOCIATE ADMINISTRATOR, OFFICE OF THE GENERAL COUNSEL, NASA

Mr. FRANKLE. Thank you, Mr. Chairman, Members of the Committee. Thank you for the opportunity to appear before the Committee to explain how NASA has been applying the provisions of the Iran Nonproliferation Act to the agency's contracting activities with Rosaviakosmos, the Russian space agency. My remarks will address specifically the legal analysis underlying NASA's decisions

to utilize the act's exception for purchases necessary to ensure crew safety on the International Space Station.

The President signed the Iran Nonproliferation Act of 2000 on March 14th, 2000, and among other things the INA restricts certain U.S. Government payments to Rosaviakosmos or any organization or entity under its control or any other organization, entity or element of the government of the Russian Federation made in connection with the International Space Station. The act prohibits NASA from making payments to a Russian entity for work on the ISS that the Russian Government had previously pledged to provide at its own expense.

In addition, without regard to previous pledges, the INA also restricts payments to any entity of the Russian Government for work on the ISS or for goods or services relating to human space flight purchased under a contract or agreement that came into effect after January 1, 1999.

These broad restrictions do not apply, however, when the President determines that Russia's cooperation in preventing proliferation to Iran meets certain criteria prescribed in the INA. Since the President has not yet made those determinations, the INA prohibits payments by agencies of the U.S. Government to Russian entities unless one or two specific exceptions applies.

The first exception relates to the ISS service module, which is now in orbit and is not relevant here. The other exception relates to crew safety and authorizes payments by NASA to Russian entities that are necessary to prevent imminent loss of life or grievous injury to individuals aboard the ISS. To invoke this exception the President must notify Congress and within 30 days submit a report describing the measures that NASA is taking to ensure that both the conditions necessitating extraordinary payments are not repeated and it is no longer necessary to make any such extraordinary payments, as well as to provide a status on Russian progress in preventing weaponry proliferation to Iran.

I should add that on September 11th, 2000 the President delegated to the Secretary of State the authority under the act to make findings relative to Russian cooperation in preventing proliferation to Iran and to the NASA Administrator the authority to determine whether payments to Russian entities are required because of an imminent concern for crew safety.

The restrictions on payments in connection with work on the ISS emerge out of section 6 and 7 of the INA. Section 6 states no action of the U.S. Government may make extraordinary payments in connection with the International Space Station to the Russian Aviation and Space Agency or any other entity of the government of the Russian Federation.

The act, however, provides an important exception with respect to crew safety. Section 6(f) authorizes NASA to make otherwise restricted payments to an entity of the Russian Government if the President has notified Congress in writing that such payments are necessary to prevent the imminent loss of life by or grievous injury to an individual aboard the International Space Station. It is the authority to make this finding and to notify Congress that has now been delegated to the NASA Administrator. For each such notice a report to Congress is also required, but not necessarily before the

extraordinary payment is made. Specifically section 6(f)(2) of the INA states that not later than 30 days after notifying Congress that NASA will make extraordinary payments the President shall submit to Congress a report describing the progress made in analyzing Russia's cooperation in nonproliferation to Iran along with the results of that review to date; and, two, the measures that NASA is taking to ensure that the conditions posing a threat of imminent loss of life or grievous injury are not repeated and that future extraordinary payments for those purchases are not necessary.

But neither the act nor its legislative history provide guidance concerning the meaning or scope of the phrase "imminent loss of life by or grievous injury to individuals" or the circumstances in which it should be invoked. So to implement the safety-related provision we first reviewed the accepted rules of statutory interpretation to see how best to interpret the narrow exception placed into the statute by Congress. A definitive legal text in this area of the law states: It has been called a golden rule of statutory interpretation that unreasonableness of the result produced by one among alternative possible interpretations of a statute is reason for rejecting that interpretation in favor of another which would produce a reasonable result. It is a well-established principle of statutory interpretation that the law favors rational and sensible construction. The Supreme Court echos that opinion frequently. Therefore, NASA has to interpret this provision and apply both the INA payment restrictions and the exception for crew safety in a manner that achieves reasonable and intended results and provides clear and rational guidance to mission operations managers.

In addition to simple application of the rules of statutory construction, we also looked to other areas of Federal law and practice for insight into the meaning and application of an imminence test for matters involving health and safety. While even expert opinions may differ over whether imminent safety concerns exist in a specific situation, one point is clear: In health and safety cases, imminent does not mean immediate. If technical expertise leads to the conclusion that an impending accident or disaster threatening to kill or cause serious physical harm is likely to occur, then the threat is imminent even if not necessarily immediate. Indeed, Federal courts have noticed on numerous occasions that agencies should avoid narrow or limited construction of statutes concerned with the protection of human safety.

From this research our conclusion was that in interpreting the safety exception, we had to abandon the notion that the word "imminent" should be taken literally to mean immediate. That interpretation would lead to one of two results, either of which appears to go beyond the expressed intent of Congress and could easily lead to an unreasonable result. For example, such an interpretation could require that no purchase of required safety-related goods or services could be made until someone's life was in actual jeopardy. The legislative record provides no support for that extreme proposition, which would mean that NASA, faced with a situation involving human beings in definite, significant and current peril, could not respond until specific determinations and notifications were made.

The second problem with interpreting "imminent" to mean immediate is that if NASA determined that a safety requirement exceeds current contract requirements the agency could not address that requirement unless and until it developed into an actual life threatening emergency. Since the threatening situation could not be addressed in advance, continued performance of the program would compel NASA to launch crews to the station knowing that an unnecessarily dangerous situation to which it was not prepared to respond could arise. Given NASA's emphasis on safety and on simple moral grounds as well, NASA would not be able to knowingly launch crews to the ISS under those circumstances. Such a result would halt the ISS program and mean that the crew safety exception was self-nullifying and meaningless, another reason to conclude that Congress did not intend such a result.

These observations led us to the conclusion that the use of the word "imminent" in the INA was consistent with its use in the safety cases cited earlier. This in turn means that NASA could respond to newly recognized dangers and act to avoid placing people in situations posing mortal or other serious personal risk. I believe this interpretation is legally compelling as reasonable and consistent with both the rules of statutory interpretation and the intent of Congress. Indeed, given the unpalatable results of interpreting "imminent" more restrictively, I doubt that Congress could have intended any other result.

In summary, I believe that NASA's interpretation is appropriate and indeed a conservative one. It gives effect to the statute—it gives effect to the exception written into law but does not let the crew safety exception swallow the general rule against extraordinary payments to the Russians.

Even in light of the paramount congressional and agency concern for crew safety, it does not follow, for example, that NASA may pay a Russian entity for any effort for which some tangential or remote link to crew safety can be identified. Instead, the rule of statutory construction compels the conclusion that to be compliant with the statute NASA be able to demonstrate that protecting the ultimate safety of the ISS crew is paramount to the transaction and that the acquisition of the goods and services will significantly reduce safety-related risks to the international crew and to the overall ISS.

At least three factors appear to be highly relevant to such determination. First, the goods and services should be necessary to meet U.S. standards for crew training and to reduce overall safety risk to the ISS. The second, the procurement will either prevent the occurrence of conditions that would pose a threat of imminent loss of life by or grievous injury to individuals aboard the station or enable U.S. personnel to respond promptly and effectively to those that do occur. Those are considered the Apollo 13 response type purchases, the requirement. And third, the required crew safety capabilities and equipment are required to be available for use by the ISS program as soon as possible as time is of the essence.

In conclusion, Mr. Chairman, for the reasons described above, it is my opinion that NASA has a thorough working understanding of the conditions that must be met in order to utilize the crew safety exception. It is with this interpretation that the needs of the ISS program to make purchases from Rosaviakosmos as described by—

to be described by Mr. Hawes are analyzed to determine if they are permissible under the INA.

Thank you.

Chairman GILMAN. Thank you, Mr. Frankle.

Mr. Hawes, again you may put your full statement in the record or summarize as you deem appropriate.

STATEMENT OF W. MICHAEL HAWES, DEPUTY ASSOCIATE ADMINISTRATOR FOR SPACE FLIGHT DEVELOPMENT, OFFICE OF SPACE FLIGHT, NASA

Mr. HAWES. I would like to just summarize some points. I believe that NASA vigorously follows the U.S. laws and regulations relating to nonproliferation. As requested in the invitation letter, I will focus on NASA's intention to purchase a limited amount of goods from the Russian Aviation and Space Agency under the crew safety exception of the INA. As you know, now NASA has planned for some time to purchase some hardware from the Russian Aviation and Space Agency to further its contingency planning and to further improve and enhance the safety of the International Space Station. We heard earlier comments of unwillingness to meet responsibility. We take our responsibility very seriously in terms of crew safety in the planning and execution of the International Space Station. We also take very seriously our responsibility under the provisions of this act, and we have thoroughly analyzed and vetted the purchases that have been proposed by our program team in Houston for their applicability in this crew exemption status.

Two items were recently purchased, as you know, under the service module exception, those that were required for contingency planning and activities on the International Space Station. One of those items because of the successful launch of the service module is no longer needed, and as we notified Congress in our operating plan letter just recently, we have terminated that activity. We are now finishing our deliberate review of the items that we proposed purchasing, and as the ISS program executive, I will shortly recommend to the NASA Administrator that a limited set of hardware and equipment that can only be provided by Rosaviakosmos in a timely fashion be procured to prevent certain types of safety threats to the ISS crew.

These equipment include on-orbit safety equipment, simulation and training capability, and integrated operations support and service. As the lead agency in the ISS partnership, it is NASA's duty to ensure that we have done everything possible to ensure the safety of the in orbit crew while we proceed with the most complex and difficult international scientific endeavor ever attempted. We would be negligent and Congress would rightfully criticize NASA if we were to allow a situation to develop in which our in orbit crews and our mission control teams could not respond to emergencies. I do not believe that it could be the intent of the Congress to prevent NASA from being able to respond appropriately and successfully to an Apollo 13 type of emergency.

Therefore, in order to improve our ability to prevent such situations, we feel strongly that a limited purchase of Russian hardware under the crew safety provisions is the most prudent course of ac-

tion and is in fact required if NASA is going to continue to be a responsible steward of the Nation's space program.

As you know, NASA has been recently delegated the authority by the President to determine which purchases come under the crew safety exception of the INA. The specific timing of the congressional notification by the NASA Administrator will be based solely on NASA's assessments of the safety needs of the International Space Station.

I thank you, and I will be happy to respond to any questions. Thank you very much.

Chairman GILMAN. Thank you very much, Mr. Hawes. I understand that the crew of the space shuttle Discovery is scheduled to dock with the International Space Station tomorrow and remain aboard the station for a week. Does NASA consider that those crew members face imminent loss of life or grievous injury during their week aboard the station?

Mr. HAWES. No, we do not.

Chairman GILMAN. In what way are the items that you plan to purchase from Russia necessary to prevent loss of life aboard the space station?

Mr. HAWES. The items that we are considering purchasing in some cases are specific hardware to be utilized by the crew on orbit during their long stay expeditions, such as a SAFER system, which in our acronym world, is a Simplified—Simplified Aid for EVA Rescue. I am sorry. My own acronyms lose me. That is a small backpack that would allow any space walking crewmen to be able to translate back to the space station if their safety tether breaks or becomes disconnected. We have that capability for the United States developed space suits. We do not have that capability for the Russian provided space suits which we will be using in some cases on the space station.

The other capabilities that we are talking about procuring are mock-ups and trainers of the Russian elements to be utilized in Houston so that not all of our teams have to travel all the time to Russia both for training and for the use of these capabilities in response planning to real time mission anomalies. We are also intending to purchase software testing and certain hardware certification testing to ensure the compatibility of all of the systems that we are required to use on the space station.

I believe these are very specific purchases that have all been reviewed for their applicability to enhance the crew safety in the program and are necessary for us to plan ahead and train both our flight crews and our mission control teams to be able to respond to situations that will arise on orbit in the space station.

Chairman GILMAN. Mr. Hawes, are any of these items available in other countries aside from Iran?

Mr. HAWES. All of these items are Russian in origin. They are mock-ups and trainers, for instance, of the Russian elements.

Chairman GILMAN. That is not what I am asking. Are these items available in other countries?

Mr. HAWES. Not at this point, no.

Chairman GILMAN. They are not available at all except from——

Mr. HAWES. They could be developed probably at a much longer schedule, at a much higher cost, but would still have an uncertain

fidelity with regard to the actual Russian elements that are flying as part of this space station.

Chairman GILMAN. If your agency doesn't buy these items, are the crew members on the station likely to be grievously injured or lose their lives?

Mr. HAWES. We have operational work-around procedures for these situations that we believe we can continue to fly in the short term, but in terms of long-term solutions that those would not be appropriate and we should continue to pursue higher fidelity training and operational capability in the United States.

Chairman GILMAN. Mr. Hawes, if you do buy these items will the risk of loss of life be eliminated?

Mr. HAWES. I think it will be significantly reduced by having the proper training and real time response capability here in the United States to manage space station anomalies.

Chairman GILMAN. Can none of these items that you plan to buy from Russia under the imminent loss of life exception be bought here in the United States or elsewhere outside of Russia?

Mr. HAWES. As I said, these are items that are all Russian in origin. We certainly could pay dramatically more on a much longer schedule and with questionable fidelity. One of these items actually has a rather interesting heritage. We had posed to an American company to build this Simplified Aide for EVA Rescue for the Russian suit. They came back to us after struggling with this problem and said we cannot meet schedule nor cost and we recommend that you go to the Russian manufacturer of their space suit, Zvezda, and procure this device.

Chairman GILMAN. Thank you. Mr. Gejdenson.

Mr. GEJDENSON. Thank you, Mr. Chairman. It seems to me that what you are doing here is you are buying items that are fundamentally designed to increase either training or survival of crew members, is that correct?

Mr. HAWES. Yes, sir.

Mr. GEJDENSON. And what you are assuming is that the Congress was reasonable enough that they would desire that you would maximize the safety and training of the crew even if, you know, a statistical analysis of the life and death threat of failing to buy this equipment might not put it at the forefront of immediate and imminent danger. Still, rational people in the Congress would want you to do everything you could to keep our people in space as safe as possible?

Mr. HAWES. Absolutely, sir. I believe that the Congress has shown time and again that they are very supportive of the International Space Station program and its execution.

Mr. GEJDENSON. And in answering the Chairman's questions, these products are not available from other countries or in the United States?

Mr. HAWES. No, they are not.

Mr. GEJDENSON. So you came to the conclusion that a rational Congress would want you to not just take a look at immediate danger, but to minimize danger to the people that go in outer space, is that correct?

Mr. HAWES. Absolutely, sir.

Mr. GEJDENSON. Thank you.

Chairman GILMAN. Mr. Rohrabacher.

Mr. ROHRABACHER. Yes. And Mr. Gejdenson's line of questioning certainly makes a lot of sense when taken totally out of the context of our efforts to keep weapons of mass destruction out of the hands of people who will kill Americans in the Middle East and elsewhere. It has something else to do, doesn't it, we are not just talking today about NASA policy, are we? We are talking about an effort by the United States Government to prevent weapons of mass destruction from getting into the hands of people who hate our country. Is that not correct?

Mr. HAWES. And as I have said, sir, I believe we are vigorously following——

Mr. ROHRABACHER. The answer is yes, is it not?

Mr. HAWES. Yes, and we are following the——

Mr. ROHRABACHER. Thank you very much. Thank you very much. So, Mr. Gejdenson, this isn't just about those questions. The answer is those questions in the context of people who hate our country getting their hands on weapons that will put the lives of millions of Americans in jeopardy and also the lives of our American military personnel, who we happen to be mourning today for the very same reason.

Mr. GEJDENSON. Will the gentleman yield?

Mr. ROHRABACHER. Yes, I will.

Mr. GEJDENSON. Recognizing the danger of countries like Iran or proliferation from any country, it seems to me not an unreasonable conclusion, if you are a Federal agency, that Congress would want you to take every effort to make sure that our personnel, whether on a ship in the Persian Gulf or being sent into space, have the maximum chance for survival. And I think what they have told us, if you can demonstrate them wrong I would be interested, that the equipment they have purchased is either for training or used in increasing the chances of survival.

Mr. ROHRABACHER. Thank you, Mr. Gejdenson. I will reclaim my time. Whereas Mr. Gejdenson isn't on the Science Committee and is certainly not on my Subcommittee which oversees this very effort, he is unaware of the battles that have taken place with NASA and this Administration as to try to mold our relationship, this specific relationship over the International Space Station with the Russian Government, in a way that we believe is beneficial to the United States of America and not to the political whims of this Administration and their short-term goals with the former Soviet Union. What we have here, Mr. Chairman, is a manifestation not of an effort by NASA to look at safety issues, but instead is a manifestation of policy by this Administration to deal in a certain way with the Russian Government, even if that way in dealing with the Russian Government is contrary to the wishes of the legislative branch. This is arrogance, this is thumbing their nose at the legislative branch and our power and oversight not only of this Committee in terms of nonproliferation but in terms of my other Committee and my Subcommittee on Space and Aeronautics. This Administration time and again has ignored ours pleas and from the Science Committee and Chairman Sensenbrenner and myself and the other Members of the Aeronautics and Space Subcommittee to

try to deal specifically with Russian companies rather than going through the Russian space agency.

Maybe you could tell us, you just mentioned a moment ago that there was a recommendation to go directly and make your purchase directly from the manufacturer of the space suit. Is that what NASA did or did they make this purchase through the Russian space agency?

Mr. HAWES. First off, we have not made any of these purchases.

Mr. ROHRABACHER. All right.

Mr. HAWES. We are proposing—I am proposing to make these purchases and as yet——

Mr. ROHRABACHER. Are you proposing to make it through the Russian space agency?

Mr. HAWES. We are proposing to make the purchases through the Russian space agency.

Mr. ROHRABACHER. All right. That answers the question. Thank you very much. Which is exactly opposite, Mr. Chairman, I might add, again exactly opposite of the direction that has been given by Chairman Sensenbrenner and myself and other Members of the Space and Aeronautics Subcommittee and Science Committee to try to make what purchases they can not through the Russian space agency but directly through contracts with Russian companies so that the money can specifically be held accountable. Again this problem is flowing not from a concern for safety, but instead for political considerations of this Administration in its dealings with a power structure in the former Soviet Union, now Russia.

Let me get back to some of the testimony that we have had here today. By the way, let me just say this testimony demonstrates and, Mr. Frankle, with all due respect and I am sorry, I think is why people hate lawyers. Your testimony demonstrates why so many people hate lawyers in this country. It is not only—well, it is unbelievable that we have people making these type of arguments directly to the people who wrote the legislation. You know, it is incredible. And let me ask, who was it who directed you to write this report, this opinion? And were you directed to write the opinion specifically to justify that position? Or did you—are you telling us that you just on your own came up with this idea that that was your conclusion after reading the legislation?

Mr. FRANKLE. Mr. Rohrabacher, after I had seen the legislation, there was a question posed to me as to the interpretation of the crew safety exception.

Mr. ROHRABACHER. Who posed that question to you?

Mr. FRANKLE. The program. I don't remember the exact individual. It may have been Mr. Hawes. It may have been somebody else. We looked at it. We looked at the legislative history, which was not extensive. We looked at the cases, and I came to that conclusion on my own that that was what the interpretation is.

Mr. ROHRABACHER. You came to that conclusion on your own; you were not instructed by anyone here or higher up in NASA to come to that conclusion?

Mr. FRANKLE. I am the chief legal officer of the National Aeronautics Space Administration and nobody directs me to make a specific determination.

Mr. ROHRABACHER. Where did you get your law degree, sir?

Mr. FRANKLE. Georgetown University Law Center.

Mr. ROHRABACHER. Let me say it is your answer to that question that stretches your credibility even further. I don't know when it will break. It is like the tether on that astronaut going out there, eventually it is going to break and there are going to be some problems. And what we have here is something that is stretching credibility beyond the breaking point that someone could interpret the law. This is beyond bending over backwards. This is legal contortions that boggle the mind.

And that is why people are upset because it appears to be just another Clintonesque, what the definition of "is" is, in order to pursue a policy or pursue one's goals in an arrogant manner; who cares what the legislative branch says, who cares what other people's thoughts are.

Mr. Chairman, my time is up but I would hope that we would have a second round of questioning. This is a disgrace.

Chairman GILMAN. I believe we will.

Ms. Ros-Lehtinen. Mr. Nethercutt.

Mr. NETHERCUTT. Thank you, Mr. Chairman. Mr. Frankle, I will try not to pile on here but this does seem to me to be a curious interpretation of the Iran Nonproliferation Act. I could agree with you, sir, if we didn't have the word "imminent" there. You indicate that imminence does not mean immediate. I can understand an interpretation like that if you talked about loss of life and/or grievous injury to individuals. The nature of space exploration is risky. I assume you would agree with that. You send people up in space, there is some risk involved.

Mr. FRANKLE. Yes, sir.

Mr. NETHERCUTT. So it seems to me that with all due respect where your interpretation fails is in your focus on the word "imminent/immediate," because it seems under that interpretation then that any modification or training or additional equipment could be interpreted to significantly reduce safety risks and so therefore it is convenient. And I don't mean that in a negative fashion to you, but it is convenient to broadly interpret the word "imminent" in such a fashion that you have. And I don't even know that it is convenient to do it. I am a little surprised that you might broaden the definition of "imminent" like you have.

Any response to that?

Mr. FRANKLE. Yes, sir. I don't think that we stretched anything significantly at all, sir.

Mr. NETHERCUTT. Did you stretch it at all or just not significantly?

Mr. FRANKLE. You have to interpret a statute when it is applied. You have to figure out how to apply it. The amendment was clearly one that was intended to help protect the lives of the astronauts on the International Space Station. When we looked at how those same words were used in other cases, in other statutes, we found that "imminent" did not have and is not generally given by the courts a meaning that means—you might believe "imminent" really means. Specifically, one of the cases that is cited in my testimony is talking about—I believe it is OSHA, and it says since the act in question is remedial and a safety statute with primary concern being the preservation of human life, it is the type of an enactment

to which a narrow or limited construction is to be issued. And then—one more sentence if you let me, sir. And then to limit imminent danger to immediate danger would result in many cases in gambling with human lives. Such a result is clearly inconsistent with the humane purposes of the act.

And I believe this amendment from all I could see and I still believe that this amendment was put in for humane purposes, so that we would not unnecessarily place U.S. astronauts at risk, and therefore we should not interpret it too narrowly and we should interpret consistent with this.

And, yes, space is a dangerous place. So we need to have in place the ability to respond to on-orbit emergencies when they come up.

Mr. NETHERCUTT. I understand that, and I appreciate that. But the name of the act is not OSHA, the name of the act is the Iran Nonproliferation Act. That should give you, as a good lawyer, some sense of what the overriding expectation is of the statute. And that is why it seems to me you have sort of conveniently—and I say it respectfully to you—looked at the safety side and ignored essentially what the Congress, Mr. Rohrabacher and others—and I am on the Science Committee as well as the Chairman—have done to try to prevent nonproliferation.

So I think you would be hard-pressed to identify any language that could be any stronger than "imminent" that would also cure the deficiency or the broad definition that you have concluded is there.

Mr. FRANKLE. May I respond, sir?

Mr. NETHERCUTT. Well, I guess we will have a second round and I will have a chance to ask Mr. Hawes some questions. I have some serious questions of him. But go ahead.

Mr. FRANKLE. We understand that this is the Iran Nonproliferation Act, and we absolutely concur in the need to encourage nonproliferation. But this is an exception to that. Congress understood by putting an exception in, Congress understands that there might be instances when it is necessary to do something you would not otherwise like to do. Otherwise, it would not have to have an exception. So we are trying to interpret the humane purposes of the exception.

I don't believe that if you look at the factors that we say you must consider in making this specific one, the fact that it is going to have an absolute impact on our ability to maintain our standards, that it will allow us to prevent the situations that would pose immediate risk of death or grievous injury would be reduced, or our ability to respond would be increased, and that time was of the essence. You will see we were trying to make this as narrow as humanly possible because of the importance of the nonproliferation activity, but at the same time allow us to run our program in a way that is sensible and not unnecessarily riskful to the astronauts.

Mr. NETHERCUTT. I will follow up with you, sir. Thanks.

Chairman GILMAN. Thank you, Mr. Nethercutt. We will now go into a second round. Mr. Gejdenson?

Mr. GEJDENSON. No questions.

Chairman GILMAN. Mr. Rohrabacher.

Mr. ROHRABACHER. Thank you very much.

So, Mr. Frankle, your testimony today is that you were not given any instructions as to what the outcome of your analysis of this would be. You weren't told to give a suggestion, give us some sort of wording that will justify us going in this other direction?

Mr. FRANKLE. No, sir, I was not.

Mr. ROHRABACHER. All right. Is there any wording that you could have suggested to us now that—clearly you have the people here who authored the legislation that you analyzed in a way in which we are making clearer to you, your interpretation was exactly the opposite of what we intended. What wording would you have put into the bill that would have ensured that a legal interpretation from you and others would not have permitted you this leeway?

Mr. FRANKLE. Without getting to the point of actually drafting provisions, it seems to me that if you go to the extent of putting a crew safety exception into a bill, that it should be a usable and meaningful exception. If it was really to be interpreted as only being able to be used when people were physically and immediately and currently at life-threatening risk, I believe an exception won't work. So I am not sure you could have drafted a crew safety exception that would have had the impact that has been suggested.

I think that once you do, you have to allow the agency to do things that are necessary to preserve and protect the safety of the astronauts.

Mr. ROHRABACHER. So there was no way that we could have written this legislation that would have prevented your interpretation of going exactly opposite to the intent of the legislation?

Mr. FRANKLE. I am saying I don't see how you could write something that really, in fact, was a crew safety exception.

Mr. ROHRABACHER. Do you believe that it is up to Congress to establish policy, and not unelected officials in government agencies like NASA?

Mr. FRANKLE. Congress certainly passes the laws, sets those policies, and if they are signed by the President they become law. And we are sworn to uphold the Constitution and law of the United States, and I believe we do, sir.

Mr. ROHRABACHER. And sets the priorities in terms of things like—nonproliferation has a certain priority, and thus we put certain things in the law, based on that priority; not in your job at NASA, maybe not even the International Space Station, but we actually have priorities that sometimes go beyond your purview as an unelected official.

Mr. FRANKLE. Yes, sir.

Mr. ROHRABACHER. All right. I think that what we have here is an example of unelected people making the determination for the policy of the United States Government, no matter what the people who are elected to write the laws are going to write, because there is a difference in priority: your ideas, the safety of the crew, within the context of getting the mission done. And obviously Congress meant that nonproliferation has to be a high priority, and perhaps would cause delays, if necessary, or restructuring of programs, like our relationship with Russia, if the Russians continued to engage themselves in activity that put millions of American lives or even certain sailors lives at risk.

Is this hard for people to understand? I mean, it seems to me that is very clear, and it seems to me, with all due respect, that your agency, and that you gentlemen, and especially by your last answer, are suggesting that the elected officials are not going to set the policy.

Mr. FRANKLE. I don't think we—I certainly did not mean to imply that. I think that the elected officials through the legislative process do set priority, and it is up to the agencies to implement it, and I believe we have been and are implementing it to the best of our ability.

Mr. ROHRABACHER. Mr. Chairman, just for the record, being the chairman of the Space and Aeronautics Subcommittee and having followed this issue and other Space Station related issues very closely, let me just say that NASA has demonstrated, time and again—and it is not necessarily NASA, it might be other people in the Administration who are directing those people at NASA to move in certain directions—but, time and again, our efforts to direct policy in the Space Station, especially with our relationship with Russia, has been ignored. And this is particularly egregious today, because we believe that the efforts of Congress to protect the lives and safety of our citizens, the safety of our country, are at sake.

Chairman GILMAN. The gentleman's time has expired. Mr. Nethercutt, please be brief.

Mr. NETHERCUTT. I will be brief, Mr. Chairman.

Mr. Hawes, would you agree, sir, that you have been wanting to buy $24 million to $35 million worth of equipment for well over a year, including spacesuits and tethers and those things that we have talked about here today?

Mr. HAWES. Yes, we have been pursuing purchase of much of this equipment for some time.

Mr. NETHERCUTT. That is right. And we have done—how many EVAs, extra-vehicular activity, have there been that have occurred on the Space Station thus far and in space?

Mr. HAWES. Using Russian suits on the Space Station? Zero.

Mr. NETHERCUTT. Okay. But there has been an awful lot done with the American spacesuits, right?

Mr. HAWES. Which have the backup capability we are trying to pursue for the Russians.

Mr. NETHERCUTT. So by your logic, it sounds like you are saying if we don't have that additional Russian equipment, that somehow our people's lives are in danger, right?

Mr. HAWES. We will have U.S. astronauts conducting space walks——

Mr. NETHERCUTT. You didn't answer my question.

Mr. HAWES. Yes, I am answering your question. We will have U.S. Astronauts conducting space walks in Russian spacesuits on the Space Station.

Mr. NETHERCUTT. That is right. What is wrong with American spacesuits? We have to have the Russian spacesuits?

Mr. HAWES. In some cases we have to use the Russian spacesuits, because they are best suited to the tasks that we have to do. But in the early part of the Space Station, we will have only

Russian suits, because we will not yet have the U.S. Airlock that allows us to do space walks with the U.S. suits.

Mr. NETHERCUTT. I am going to submit some questions for the record, if I may.

Chairman GILMAN. Without objection, and if you will respond to those questions at an early date.

[The information referred to is available in the appendix.]

Chairman GILMAN. Thank you for being with us, Mr. Nethercutt.

How soon do you expect the NASA Adminisrator to decide whether to proceed with these purchases from Russia?

Mr. HAWES. I cannot answer, sir. I have yet to take these——

Chairman GILMAN. Where are you in the decision-making process?

Mr. HAWES. I have built my list. I have vetted it against the criteria——

Chairman GILMAN. And who has to make the decision?

Mr. HAWES. The Administrator has to make the decision.

Chairman GILMAN. And you have no idea how soon he will be making that decision?

Mr. HAWES. I have to go through my chain of command, sir, to the NASA Adminisrator. I expect that to be shortly.

Chairman GILMAN. We have been told by State that NASA will not make any decisions about use of the imminent loss of life exception until after the first report required to be submitted to Congress under the Iran Nonproliferation Act has in fact been submitted; is that correct?

Mr. HAWES. We have absolutely no agreement with State that these events are tied whatsoever. We will proceed on the basis of safety.

Chairman GILMAN. You have not made any agreement with the State Department?

Mr. HAWES. No.

Chairman GILMAN. I guess because we have votes on the floor, we will conclude our hearing.

I thank you, gentleman, for appearing before our Committee.

The Committee stands adjourned.

[Whereupon, at 11:23 a.m., the Committee was adjourned.]

APPENDIX

MATERIAL SUBMITTED FOR THE HEARING RECORD

STATEMENT OF CHAIRMAN BENJAMIN A. GILMAN
HEARING ON NASA'S IMPLEMENTATION OF
THE IRAN NONPROLIFERATION ACT
October 12, 2000

The hearing will come to order.

I called this hearing in order for members of Congress to hear first-hand about a remarkable legal interpretation of the Iran Nonproliferation Act that apparently has been adopted by the National Aeronautics and Space Administration. This interpretation threatens to eviscerate this important new law that was enacted with great fanfare just seven months ago.

As everyone knows, the problem of proliferation from Russia to Iran of dangerous weapons technology, especially missile technology, has been with us for many years now. The Clinton Administration tried repeatedly in the past to do something about it, but the results were invariably disappointing. In exasperation, a number of us in Congress felt compelled to act.

Here in the House, I joined with our distinguished Ranking Democratic Member, Mr. Gejdenson, and the distinguished Chairman of our Committee on Science, Mr. Sensenbrenner, to introduce the Iran Nonproliferation Act. The lead Senate sponsors of the measure included not only the distinguished Majority Leader, Mr. Lott, but also the man that Vice President Gore has chosen as his running mate, the junior Senator from Connecticut, Mr. Lieberman.

The Clinton Administration did not like our legislation. In fact, they threatened in writing to veto it. But we were not deterred. The Gilman/Gejdenson/Lott/Lieberman bill passed the House unanimously, and then it passed the Senate unanimously, and in the end President Clinton signed it into law on March 14th of this year.

Since that time, a remarkable thing has happened. The Clinton Administration has gone about its business as if the law did not exist.

In essence, the law only requires two things. First, it requires the President to report periodically to Congress about proliferation to Iran from other countries. Second, it prohibits NASA from buying new goods and services from Russia for the International Space Station until the President determines that all of the approximately 400 entities under the Russian Aviation and Space Agency have gotten out of the business of proliferating to Iran.

The law's reporting requirement has been utterly disregarded by the Clinton Administration. The first report was required by law to be submitted to Congress no later than three months after the date of enactment, or by June 12th of this year. The second report was required by law to be submitted to Congress no later than six months after the date of enactment, or by September 14th. Neither one of these reports has been submitted.

The State Department has lots of excuses for disregarding these reporting deadlines. They've been busy doing other things. They've had a hard time figuring out how to write the reports. It's a lot of work. Most recently they sent us a letter saying that they are going to try hard to finish the first report by December 1st – or six months after it was due – but they're not making any promises.

Obviously the Administration has not treated compliance with the reporting requirements of the Iran Nonproliferation Act as a priority. In fact, after the bill was enacted they waited for two full months to get around to asking the CIA to collect the information they would need to write the first report. That information apparently was not given to the people who will actually write the report until last month. And when we asked, we were told that not a single person within the Executive branch had been put to work full time on complying with this law.

We have now learned that NASA is considering implementing the law in a way that will make the State Department's record look like a model of compliance. The law is very clear that NASA cannot make what are called "extraordinary payments in connection with the International Space Station" to Russia until the President gives all entities within the Russian Aviation and Space Agency have a clean bill of health on proliferation to Iran. The President cannot even consider doing that now because the State Department has not written any of the required reports about what these entities are doing.

There is, however, an exception in the law for crew safety. If the President notifies Congress in writing that an otherwise prohibited purchase from Russia is "necessary to prevent the imminent loss of life by or grievous injury to individuals aboard the International Space Station," that purchase may be made notwithstanding the law's prohibitions.

This exception was inserted into the legislation by our own Dana Rohrabacher during the Science Committee's mark-up of the bill. Hopefully in a few minutes Mr. Rohrabacher will be able to describe to us his intentions in writing this exception. My own understanding was always that this was an exception that was to be available to NASA in emergency situations only.

NASA, however, has come up with its own interpretation of what Mr. Rohrabacher intended, which is considerably broader than an exception just for emergency circumstances. NASA apparently believes that the purchase of anything that arguably enhances safety will fit within this exception.

If NASA's interpretation is allowed to stand, I fear that virtually nothing will be left of the law's prohibition on extraordinary payments in connection with the International Space Station. I had hoped that we in Congress had concluded our work in this area when we enacted the Iran Nonproliferation Act earlier this year, but, regrettably, NASA's present course may leave us with no choice but to legislate again on this issue.

I now recognize our Ranking Democratic Member, Mr. Gejdenson for any comments he may have. Mr. Gejdenson.

Statement of Edward A. Frankle
NASA General Counsel

Before the
Committee on International Relations
U.S. House of Representatives

October 12, 2000

Mr. Chairman and Members of the Committee:

Thank you for this opportunity to appear before the Committee to explain how NASA has been applying the provisions of the Iran Nonproliferation Act to the agency's contracting activities with Rosaviakosmos, the Russian space agency. My remarks will address specifically the legal analysis underlying NASA decisions to utilize the Act's exception for purchases necessary to ensure crew safety on the International Space Station (ISS).

Background: The President signed the Iran Nonproliferation Act of 2000 (INA) on March 14, 2000 (Pubic Law 106-178). Among other things, the INA restricts certain U.S. Government payments to the Rosaviakosmos, or any organization or entity under its control, or any other organization, entity, or element of the Government of the Russian Federation (Russian entity), made in connection with the ISS. The Act prohibits NASA from making payments to a Russian entity for work on the ISS that the Russian Government had previously pledged to provide at its own expense. In addition, without regard to previous pledges, the INA also restricts payments to any entity of the Russian Government for work on the ISS, or for goods or services relating to human space fight, purchased under a contract or agreement that came into effect after January 1, 1999.

These broad restrictions do not apply, however, when the President determines that Russia's cooperation in preventing proliferation to Iran meets certain criteria prescribed in the INA. Since the President has not yet made these determinations, the INA prohibits payments by agencies of the US Government to Russian entities, unless one of two specific exceptions applies. The first exception relates to the ISS Service Module, which is now in orbit and not relevant here. The other exception relates to "crew safety" and authorizes payments by NASA to Russian entities that are necessary to prevent "imminent loss of life by or grievous injury to individuals aboard the [ISS]." To invoke this exception, the President must notify Congress and, within 30 days, submit a report describing the measures that NASA is taking to ensure that both the conditions necessitating the extraordinary payments are not repeated and that it is no longer necessary to make any such extraordinary payments, as well as provide a status on Russian progress in preventing weaponry proliferation to Iran. I should add that, on September 11, 2000, the President delegated to the Secretary of State the authority under the Act to make findings relative to Russian cooperation in preventing proliferation to Iran and to the NASA Administrator the authority to determine whether payments to Russian entities are required because of an imminent concern for crew safety.

Requirements of the Act: The restrictions on payments in connection with work on the ISS emerge out of Sections 6 and 7 of the INA. Section 6 states that :

> . . .[N]o agency of the United States Government may make extraordinary payments in connection with the International Space Station to the Russian Aviation and Space Agency . . . or any other . . .entity. . . of the Government of the Russian Federation . . . .

The Act provides, however, an important exception with respect to crew safety. Section 6(f) authorizes NASA to make otherwise restricted payments to an entity of the Russian Government ". . . if the President has notified the Congress in writing that such payments are necessary to prevent the imminent loss of life by or grievous injury to individuals aboard the International Space Station." It is the authority to make this finding and to notify Congress that has now been delegated to the NASA Administrator.

For each such notice, a report to Congress is also required, but not necessarily before the extraordinary payment is made. Specifically, Section 6(f)(2) of the INA states that not later than 30 days after notifying Congress that NASA will make extraordinary payments, the President shall submit to Congress a report describing (1) the progress made in analyzing Russia's cooperation in nonproliferation to Iran, along with the results of that review to date; and (2) the measures that NASA is taking to ensure that the conditions posing a threat of imminent loss of life or grievous injury are not repeated, and that future extraordinary payments for those purposes are not necessary.

But neither the Act nor its legislative history provide guidance concerning the meaning or scope of the phrase "imminent loss of life by or grievous injury to individuals" or the circumstances in which it should be invoked. We assume this was intentional. Congress has typically deferred to NASA's expertise and judgment in matters involving crew safety, a preeminent Agency concern that Congress shares. This mutual concern for safety was illustrated by Chairman Rohrabacher of the Subcommittee on Space and Aeronautics of the House Science Committee during the Subcommittee markup of the legislation on July 29, 2000. Mr. Rohrabacher, who at that time offered the crew safety exception as a "Safety Valve Amendment" to an earlier version of the legislation, stated, "I think it is important to provide a safety valve, and that is what we are doing here in terms of sending payments to the Russian Space Agency, as we need to do this just in case there is a life-threatening emergency."

This emphasis on safety was echoed by the House Science Committee Chairman, Congressman Sensenbrenner, when he stated during the floor debate on passage of the Act:

> While helping curb proliferation, the bill does not jeopardize the safety of our astronauts aboard the ISS or delay the delivery of the Russian hardware that NASA claims it requires in order to reduce U.S. dependence upon Russia in the space station program. Both of these issues are addressed in narrow and specific exceptions to the bill. [106 Congressional Record H.605 (March 1, 2000)]

Thus, to implement this safety related provision, we first reviewed the accepted rules of statutory interpretation to see how best to interpret the narrow exception placed into the statute by Congress. A definitive legal text in this area of the law states:

> It has been called a golden rule of statutory interpretation that unreasonableness of the result produced by one among alternative possible interpretations of a statute is reason for rejecting that interpretation in favor of another which would produce a reasonable result. It is a "...well established principle of statutory interpretation that the law favors rational and sensible construction...."Sutherland Stat. Const. Sec. 45.12 (5th Ed).

This rule rests upon the fundamental premise that Congress cannot have intended an unreasonable result, a premise that is well settled in U.S. law. The Supreme Court has stated that "[s]tatutes should be interpreted to avoid untenable distinctions and unreasonable results whenever possible." *American Tobacco Company v. Patterson*, 456 U.S. 63, 71 (1982). Therefore, NASA must interpret and apply the INA payment restrictions and the exception for crew safety in a manner that achieves reasonable and intended results and provides clear and rational guidance to mission operations managers.

In addition to simple application of the rules of statutory construction, we also looked to other areas of Federal law and practice for insight into the meaning and application of an "imminence" test for matters involving health and safety. While even expert opinions may differ over whether imminent safety concerns exist in a specific situation, one point is clear. In health and safety cases, "imminent" does not mean "immediate." If technical expertise leads to the conclusion that an impending accident or disaster, threatening to kill or to cause serious physical harm, is likely to occur, then the threat is imminent even if it is not necessarily immediate. *See, Old Ben Coal Corp. v. Interior Board of Mine Operations*, 523 F.2d 25 (7th Cir., 1975). Indeed, Federal Courts have noted on numerous occasions that agencies should avoid narrow or limited construction of statues concerned with protecting human safety. *See,e.g., Freeman Coal Mining Company v. Interior Board of Mine Operations*, 504 F.2d 741, 744 (7th Cir. 1974); *St. Mary's Sewer Pipe Co. v. Director of U.S. Bureau of Mines*, 262 F.2d 378, 381 (3rd Cir. 1959); *Reliable Coal Corp v. Morton*, 478 F.2d 257, 262 (4th Cir. 1973).*

From this research, our conclusion was that in interpreting the safety exception, we had to abandon any notion that the word "imminent" should be taken literally to mean "immediate." That interpretation would lead ultimately to one of two results, either of which appears to go far beyond any expressed intent of Congress and could easily lead to an unreasonable result. For example, such an interpretation could require that no purchase of required safety related goods or services could be made until someone's life was in actual jeopardy. The legislative record provides no support for such an extreme proposition, which could mean that NASA, faced with a situation involving human beings in definite, significant, and current peril, could not respond until specific determinations and notifications were made.

The second problem with interpreting "imminent" to mean "immediate" is that if NASA determined that a safety requirement exceeds current contract requirements, the Agency could

* Numerous other citations exist and will be provided at the request of the Committee.

not address that requirement unless and until it developed into an actual, life threatening emergency. Since the threatening situation could not be addressed in advance, continued performance of the program would compel NASA to launch crews to the station knowing that an unnecessarily dangerous situation to which it was not prepared to respond could arise. Given NASA's emphasis on safety, and on simple moral grounds as well, NASA would not be able to knowingly launch crews to the ISS under those circumstances. Such a result would halt the ISS program and mean that the crew safety exception was self-nullifying and meaningless, another reason to conclude that Congress did not intend such a result.

These observations led us to the conclusion that the use of the word "imminent" in the INA was consistent with its use in the safety cases cited earlier. This, in turn, meant that NASA could respond to newly recognized dangers and act to avoid placing people in situations posing mortal or other serious personal risk. I believe this interpretation is legally compelling as reasonable and consistent with both the rules of statutory interpretation and the intent of Congress. Indeed, given the unpalatable results of interpreting "imminent" more restrictively, I doubt Congress could have intended any other result.

In summary, I believe that NASA's interpretation is an appropriate and, indeed, a conservative one. It gives effect to the exception written into the law by Congress but does not let the crew safety exception swallow the general rule against extraordinary payments to the Russians. Even in light of the paramount Congressional and agency concern for crew safety, it does not follow, for example, that NASA may pay a Russian entity for any effort for which some tangential or remote link to crew safety can be identified. Instead, the rules of statutory construction compel the conclusion that to be compliant with the statute, NASA be able to demonstrate that protecting the ultimate safety of the ISS crew is paramount to the transaction and that acquisition of the goods and services will significantly reduce the safety-related risks to the international crew and to the overall ISS. At least three factors appear to be highly relevant to any such determination:

- The goods and services should be necessary to meet U.S. standards for crew training and to reduce the overall safety risk to the ISS;

- The procurement will either prevent the occurrence of conditions that would pose a threat of imminent loss of life by or grievous injury to individuals aboard the International Space Station or enable U.S. personnel to respond promptly and effectively to those that do occur; and

- The required crew safety capabilities and equipment are required to be available for use by the ISS program as soon as possible, so time is of the essence.

In conclusion, Mr. Chairman, for the reasons described above, it is my opinion that NASA has a thorough, working understanding of the conditions that must be met in order to utilize the crew safety exception. It is with this interpretation that the needs of the ISS program to make purchases from Rosaviakosmos, as described by Mr. Hawes, are analyzed to determine if they are permissible under the Iran Nonproliferation Act of 2000.

Statement of

W. Michael Hawes
Deputy Associate Administrator for Space Flight Development
National Aeronautics and Space Administration

Before the

Committee on International Relations
House of Representatives

Mr. Chairman and Members of the Committee:

Thank you for the opportunity to address the Committee today about the safety of our astronauts, as it relates to NASA's plans to purchase Russian safety-related goods and services for the International Space Station (ISS) and NASA's compliance with the Iran Nonproliferation Act of 2000 (INA) (P.L. 106-178). The ISS program has made significant progress this year, with the successful on-orbit delivery of the Russian Zvezda Service Module in July, as well as the completion of three logistics missions, including the docking of two Space Shuttle orbiters and one Russian Progress vehicle.

As challenging as the ISS program has been to date, the stakes will increase dramatically this Fall when the first ISS crew, composed of U.S. astronaut William Shepherd (Commander) and Russian cosmonauts Yuri Gidzenko and Sergei Krikalev, arrives in a Soyuz vehicle to establish a permanent human presence on the ISS. NASA and its international partners in the ISS program have consistently focused on mitigating risk whenever possible in preparation for unexpected operational scenarios which could threaten the safety of the crew.

Given our focus on risk mitigation and crew safety, NASA is considering the purchase from the Russian Aviation and Space Agency (Rosaviakosmos) of up to $24 million in goods and services, under the Crew Safety exception of P.L. 106-178, to meet specific ISS crew safety requirements and significantly reduce the safety-related risks to the international crew and the overall ISS. Today, I will present information to the Committee Members to demonstrate that NASA has applied solid programmatic and technical rationale in developing this plan, and the plan is both time-sensitive and critical to ensuring the safety of the ISS crew.

From a personal perspective, my experience at NASA includes many years devoted to the preparation and execution of space mission operations. I know the amount of preparation and coordination required across the Agency and the ISS partnership to provide safe quarters for our voyagers in space. The risks they face in order to further our Nation's space objectives are considerable. For Bill Shepherd, Yuri Gidzenko, Sergei Krikalev, and the ISS crews to follow, it is essential that we have the flexibility to assure their security and well-being in the harsh environment of space. That is, we must provide the security of knowing that NASA is taking all reasonable and prudent precautions with

their lives. To the crew, and to all of the Human Space Flight team in the U.S. and around the world, that is what this hearing is about.

First of all, it should be noted that concerns about potential Russian shortfalls in the ISS Program are not related to the NASA desire to purchase specific goods or services under the Crew Safety Exception of P.L. 106-178. Rather, the necessity for this potential procurement from Rosaviakosmos stems from the requirement to mitigate risk before a potentially catastrophic event can occur. At present, only Rosaviakosmos can provide this capability in a timely fashion to ensure that our flight and ground teams can operate safely during critical mission events. The ISS program involves a very complex orchestration of efforts around the globe under NASA leadership, and it is critical that NASA have the flexibility to make safety-related decisions in a timely fashion. This proposed purchase makes significant contributions towards this additional flexibility.

In summary, with a permanently-crewed space station, the window of exposure to on-orbit risk becomes open-ended. As a result, continuous readiness is required in terms of rapid and high-fidelity simulation capability, sustaining engineering expertise, training, and seamless coordination among flight controllers, designers, analysts, equipment suppliers, and managers from NASA and the international partners.

Background

For over a year NASA has discussed with appropriate Committee staffs its desire to purchase limited goods and services from Rosaviakosmos, including some related to the operational safety of ISS. In February 2000, NASA reallocated $35 million for such potential purchases from Rosaviakosmos through a change in the Agency's FY 1999 Operating Plan. Subsequent to that adjustment, P.L. 106-178 was enacted. The statute specifically authorized "the purchase (at a total cost not to exceed $14,000,000) of the pressure dome for the Interim Control Module and the Androgynous Peripheral Docking Adapter (APAS), and related hardware for the United States propulsion module..." The President notified Congress on June 29, 2000, that the $14 million purchase was being executed, consistent with the provisions of P.L. 106-178.

Work on the APAS continues; however, successful launch and docking of the Service Module in July 2000, eliminated the need for the pressure dome, and contracted work on it has been terminated. As a result, NASA has revised the total contract value from $14 million to $11 million.

The remainder of NASA's originally planned $35 million purchase, up to $24 million in FY 2000 appropriations, is being considered for the procurement of goods and services to prevent the occurrence of conditions that would pose a threat of imminent loss of life by, or grievous injury to, individuals aboard the ISS. These goods and services would reduce the overall safety risk to the ISS and its crew by providing Russian system components necessary for NASA to train U.S. crews for on-orbit contingencies or to simulate on-orbit

contingencies in real time. As discussed below, NASA will purchase only those safety-related goods and services that are consistent with the "Crew Safety" exception of P.L. 106-178.

Previously, some discussion arose during debate on the law about the relevance of an "Apollo 13" type of emergency response. Certainly NASA wants to be ready for such a dramatic situation, but there are many less dramatic yet still critical scenarios that we must be capable of resolving. The ability to respond to a life threatening situation like that experienced during Apollo 13 depends on the quality of the crew and ground personnel training and on the fidelity of the ground-based tools and simulators which allow these teams to troubleshoot, develop procedures, and validate their solutions. These capabilities simply must be in place and operational prior to any potentially life-threatening situation occurring, not after the fact.

NASA's Approach to Safety

Since the Committee has expressed interest in NASA's interpretation of the circumstances under which purchases to augment crew safety may be required, an explanation of safety methodologies is in order. NASA appreciates the opportunity to discuss this process. While the procurement of certain goods and services are at issue today, NASA will, without a doubt, identify additional program requirements as we proceed through assembly and into full ISS operations.

NASA's approach to ensuring safety on the ISS is based on proven principles from over 30 years of human space flight experience. Considering the tremendous complexity of human spacecraft systems, combined with the unforgiving harshness of the space environment, NASA has instituted a very proactive and comprehensive system of risk management. The goal is to identify all potential hazards and to take steps to eliminate or reduce to an acceptable level the overall risk to the crew and vehicle.

The keys to ensuring safety via this risk management method are identification, assessment, prevention and preparation. This is accomplished by a variety of methods including ground testing, simulations, analyses, procurement of critical spare parts, procedure verification, and training for both crewmembers and flight controllers. The intended result of this broad-based effort is operational readiness. Before every mission, NASA strives to cultivate a real-time capability for executing a rapid and effective response to safety-critical operational contingencies.

Preparatory work required to ensure safety includes an array of ground testing, not only to ensure basic functionality of ISS hardware and software, but also to acquire an understanding of integrated system behavior. Such a characterization is obtained by conducting simulations with flight crew and ground based personnel that are integrated across subsystems, performed in accordance with actual operational procedures, and consistent with observed test and flight data.

As the ISS program transitions from development to the operations phase, the unique signatures of the various subsystems and their interaction in a complex real-world environment reveal themselves. The sustaining engineering function is intended to respond to our evolving understanding of the ISS. This includes not only the simulations described above, but also the development of individual expertise as well as synergy derived from the relationships between experts. Development of these qualities becomes essential when responding to real-time safety-critical contingencies.

Although test facilities and simulators are necessary to ensure a safe operational environment for ISS crews, these are not sufficient. NASA's ability to operate the ISS safely and efficiently ultimately depends on the training of personnel both on-orbit and on the ground.

The training philosophy which NASA employs for all its human-tended space endeavors, including the ISS program, is founded on the recognition that the operations team will often encounter unexpected events, and will need to execute a competent response immediately in order to avoid catastrophic consequences. As such, the training process for astronauts and flight controllers alike encompasses not only the acquisition of knowledge, but also the honing of skills to such a degree that flawless execution is assured and safety is not compromised. Training, therefore, is a long-term commitment to quick, reliable performance, and though the investment is considerable, the payoff is invaluable.

NASA is only proposing the acquisition of those goods and services from Rosaviakosmos that significantly reduce the safety-related risks to the international crew and the overall ISS. According to guidance from the NASA General Counsel regarding criteria for the purchase of such safety-related goods and services from Rosaviakosmos under the Crew Safety exception of the INA, at least three factors appear to be highly relevant to any such purchase:

1. The goods and services should be necessary to meet U.S. standards for crew training and to reduce the overall safety risk to the ISS.
2. The procurement will either prevent the occurrence of conditions that would pose a threat of imminent loss of life by or grievous injury to individuals aboard the ISS or enable U.S. personnel to respond promptly and effectively to those that do occur.
3. The required crew safety capabilities and equipment are required to be available for use by the ISS program as soon as possible, so time is of the essence.

I must reemphasize that with a permanently crewed ISS, the window of exposure to on-orbit risk becomes open-ended. As a result, continuous readiness is required in terms of rapid and high-fidelity simulation capability, sustaining engineering expertise, training, and seamless coordination among flight controllers, designers, analysts, equipment suppliers, and managers from NASA and the international partners. As such, the

purchase of safety-related goods and services from Rosaviakosmos using the three criteria mentioned above is an important component of the safety posture of ISS.

Requested Procurement of Russian Goods and Services

On the basis of the risk management methods described above, NASA has identified a number of areas in which the safety of the ISS crew would be augmented significantly if particular Russian goods and services were purchased under the Crew Safety exception in the INA. These areas may be categorized as follows:

1. On-orbit Safety Equipment
2. Simulation and Training Capability
3. Integrated Operations Services

This list of categories is not exhaustive, but reflects the actual purchases currently under consideration.

1. On-orbit Safety Equipment. Certain Russian purchases are intended to provide equipment to be used directly by the ISS crew to enhance safety. An example of this category is Russian spacesuit equipment including the Orlan Simplified Aid For Extra-vehicular activity Rescue (SAFER), which would enhance the safety of ISS crewmembers when using Russian spacesuits for extra-vehicular activity (EVA) operations. Specifically, this equipment, which already accompanies U.S. spacesuits, provides a critical self-rescue capability in case an EVA crewmember becomes detached from the protective tether cable, thereby facing an imminent loss of life.

   The first anticipated use of the Russian Orlan suits is following ISS assembly sequence Flight 5A, currently planned for January 2001. As such we are already behind on its development. In lieu of this capability the crew will have to employ additional awkward tether techniques during these early space walks.

2. Simulation and Training Capability. In order to achieve operational readiness, a high-fidelity simulation and training capability is required. This is to ensure an effective, time-critical response to life-threatening situations like that experienced during Apollo 13. These items will enable Houston-based training for ISS astronauts and flight controllers, increasing safety by enabling a training environment with the potential to simulate an ISS configuration that integrates the on-orbit components of NASA, Rosaviakosmos, and other international partners. This capability will significantly improve the ability of the entire flight control team and crew to respond to time critical safety contingencies, greatly enhancing the ability of the Mission Control Center – Houston (MCC-H) operations team to operate the Russian element.

   One example would be the purchase of Russian spacesuit equipment, including additional Orlan suits and components to support training in the Neutral Buoyancy

Laboratory (NBL) in Houston. These components will ensure safe operations in the NASA training environment in the United States. These capabilities are used not only for crew training but also for mission support to real time problems.

All these mockups and simulators will be utilized during real time anomaly resolution, whether in the Apollo 13 scenario, or as utilized in mission operations methodology employed over the past three decades, when crews must develop and demonstrate procedures on the ground prior to their use on the ISS. Without access to these trainers in the U.S., all mission critical analysis associated with such anomalies would need to be conducted in Russia, preventing U.S. based personnel from participation in real time efforts to respond to on-orbit emergencies.

3. Integrated Operations Services. Simulators and mockups are necessary but not sufficient to ensure the operational readiness required to respond to potential life-threatening scenarios. Also critical are the detailed understanding of the nuances of the systems operations and the ability to continue to support and operate these ground systems. Integrated operations with ISS international partners, including Rosaviakosmos, is crucial to ensuring crew safety, due to the need for proactive, time-sensitive, complex integrated command and control responses. For example, Russian element integration support is required to ensure that supplemental testing and spacecraft systems knowledge are available to the U.S. to assist in the safe operations of the ISS as the Russian and U.S. modules are integrated on-orbit.

NASA's Role in Support of U.S. Nonproliferation Efforts

While the State Department leads the implementation of the Administration's nonproliferation policies, I can state that NASA has been vigilant and vigorous in supporting our Nations's effort to protect against proliferation. NASA vigorously follows U.S. laws and regulations relating to nonproliferation. NASA also steadfastly implements U.S. Government nonproliferation policy and goals. As the Committee is aware, all countries participation in the ISS program are members of the Missile Technology Control Regime (MTCR) and other regimes that govern nonproliferation norms and guidelines. NASA has continually made it clear to Rosaviakosmos and the other ISS international partners that adherence to nonproliferation norms and guidelines is essential. In literally every interaction with Rosaviakosmos and its contractors at all levels, all NASA officials, myself included, clearly communicate that NASA full supports and implements the U.S. Government's nonproliferation efforts and that NASA would be obligated to take action against any organizations that violate the MTCR or associated nonproliferation norms and guidelines.

Conclusion

The Agency is using a sound methodology to determine which goods and services are necessary to meet U.S. standards for crew training, to ensure operational capability, and to reduce the overall safety risk to the ISS and its crew. We believe that the procurement of limited goods and services from Rosaviakosmos will prevent the occurrence of conditions that would pose a threat of imminent loss of life by or grievous injury to individuals aboard the ISS and will enable U.S. personnel to respond promptly and effectively to those that do occur. These required crew safety capabilities and equipment must be available for use by the ISS program as soon as possible, so time is of the essence. NASA will only propose the purchase of those goods and services that meet the reasonable interpretation of the Crew Safety exception of the INA.

As we prepare for the arrival of the first ISS expedition crews, we must ensure that we are preparing our flight and ground teams for rapid response to in-flight problems in this phase of continuous operations. In some cases the items which we will propose to purchase are already late and operational work-arounds will be employed. Continually working in this mode however is unsatisfactory. We stand at the threshold of the ISS era. We are responsible and accountable for ensuring that we have done everything humanly possible to provide a safe and secure environment for the ISS crews. The tools, techniques, and plans for doing so are being identified and we are ready to implement and move forward. NASA appreciates the Committee's concern in this matter and we welcome inquiries from Congress.

Responses to written questions submitted for the record by Rep. George R. Nethercutt resulting from the October 12, 2000 hearing

Implementation of the Iran Non-proliferation Act of 2000

QUESTION 1:

Since the first modules for the Space Station were launched in the fall of 1998, how many astronauts or cosmonauts have visited the Space Station?

ANSWER 1:

Over the course of five Space Shuttle missions conducted since 1998 for International Space Station (ISS) assembly, maintenance, and re-supply purposes, 34 crew members have visited the ISS over a cumulative period of 17 days. Additionally, 3 crew members have inhabited the ISS on a permanent basis since November 2, 2000.

QUESTION 2:

Did these astronauts have access to the equipment and training specified in the written testimony?

ANSWER 2:

No. The goods and services to which NASA referred in the testimony submitted for the hearing on October 12 have not been procured from Russia and are not available to either ISS crew members or ground control personnel.

QUESTION 3:

Were these astronauts/cosmonauts ever in imminent danger of losing their lives?

ANSWER 3:

No. The ISS is safe for human habitation, and has been supporting a permanent 3-person crew since November 2, 2000.

QUESTION 4:

Are the crew members of STS-92 (launched on October 11, 2000) in imminent danger of losing their lives?

ANSWER 4:

No.

QUESTION 5:

Do these crew members have access to the equipment and training specified in the written testimony?

ANSWER 6:

No.

QUESTION 7:

Is there a date certain (dd/mm/yy) at which if NASA does not have the equipment specified in the testimony that future crews will then be in imminent danger of losing their lives? If so, on what specific date (dd/mm/yy) would personnel on the International Space Station be in imminent danger of losing their lives?

ANSWER 7:

Accidents in complex systems such as aircraft, ships, and indeed the ISS, are usually caused by a combination of primary hazards, malfunctions, and/or errors which manifests itself only upon being triggered suddenly by some contributory hazard. Such anomalous conditions cannot be predicted *a priori*, and as such, it is impossible to indicate a specific date upon which ISS crew members would be in imminent danger of losing their lives.

What is clear is that the ability to respond effectively to a life-threatening situation like that experienced during Apollo 13 depends heavily on the ground-based tools and simulators which allow the ground control teams to assist flight crews in troubleshooting malfunctions, developing corrective procedures, and validating operational solutions. Any delay in making such tools available to the ISS program will aggravate the risk of loss of life.

Furthermore, it is clear that the risks of losing an astronaut's life can be reduced significantly via training, and as NASA has testified, much of the equipment under consideration is associated with increased training for the crew and ground teams. Although the first expedition crew benefited significantly from additional training received during schedule slips prior to their launch, future crews are training on much tighter schedules and on increasing numbers of elements and systems. For four of these future crews, the training process has begun and is being adversely affected by the absence of this equipment, so time is of the essence in making these procurements.

With regard to the Russian Orlan spacesuits, the self-rescue capability enabled by the Simplified Aid For Extravehicular Activity (EVA) Rescue (SAFER) equipment has been implemented on the U.S. suits to respond to a "man overboard" scenario. Without this safety augmentation, crews conducting space walks will incur a higher risk of imminent loss of life. The first external space walk with Russian suits is planned for Summer 2001.

QUESTION 8:

Has the lack of the equipment and training identified in the testimony left crews of previous ISS support missions in imminent danger of losing their lives?

ANSWER 8:

During the 17 days of temporary habitation in the ISS, the crews have not been in imminent danger of losing their lives; however, the range and frequency of activities which these crews performed is not representative of those which a permanent ISS

crew can expect. For example, an EVA with Russian spacesuits has not yet been performed. Furthermore, to assemble the ISS an estimated 2200 EVA crew hours will be required, including 800 hours using Russian spacesuits, so it is expected that by the time the ISS is fully assembled, the cumulative EVA time in the history of manned space exploration will have more than doubled. As such, although every crewmember dispatched to the ISS has been safe, if the goods and services identified in the testimony are not purchased, the resulting growth of exposure to hazards will reduce the level of safety and increase the risk of imminent loss of life.

QUESTION 9:

The written testimony indicates that NASA wishes to employ the Russian space suit equipment in early 2001, but that they are behind on its development and that NASA will employ "additional awkward tether techniques" in lieu of the Russian space suit equipment. Does the use of these tethers represent an imminent danger for the loss of life or grievous injury?

ANSWER 9:

Using tether techniques alone, rather than augmenting them with the standard SAFER equipment which is required for U.S. space walks, would increase the risk of losing an EVA crewmember's life. In particular, the use of these techniques near certain external regions of the ISS Russian segment, for which the Russian Orlan spacesuits are optimized, exposes the crew to short periods of time during which separation from the ISS is only one failure away. Should such a separation contingency occur, some means of self-rescue, such as the Russian Orlan-adapted SAFER, would be absolutely necessary to prevent the loss of life.

The additional safety risk which results from conducting such EVAs without SAFER equipment has been deemed acceptable by NASA, but only if this activity is performed on an extremely limited and interim basis with some plan to mitigate the risk. NASA's plan is to procure the Russian SAFER, and to do so as soon as possible since otherwise the risk of loss of life or grievous injury will grow as EVA exposure time increases.

QUESTION 10:

When is the first operational use of the Russian space suit equipment expected?

ANSWER 10:

The first anticipated ISS external use of the Russian Orlan suits is following ISS assembly sequence Flight 7A.1, currently planned for Summer 2001.

QUESTION 11:

How many EVAs has NASA conducted since the decision was made to acquire Russian space suit equipment and how many more are expected before the first use? How many hours of EVAs have been conducted in this period?

ANSWER 11:

There have been zero ISS EVAs conducted with the Russian Orlan spacesuits. Over the course of five ISS-related Space Shuttle missions, there have been 10

EVAs, and all have employed U.S. spacesuits equipped with U.S. SAFER units. Each EVA was conducted by two EVA crew members and lasted an average of 6.5 hours, for a total of 130 EVA crew hours. The Orlan-adapted SAFER equipment which NASA is considering to purchase could be available at KSC as early as March 2001 (on-orbit by June 2001), and no ISS external EVAs employing Russian suits are anticipated before then.

QUESTION 12:

How many times have tethers failed in the history of space exploration?

ANSWER 12:

NASA has never suffered an on-orbit failure of a human-rated safety tether; however, tether systems used to secure EVA tools and equipment have failed on several occasions, and items have floated away from manned spacecraft into space, never to be recovered. Furthermore, ground-based vacuum chamber tests have yielded potentially life-threatening failures in which a tether hook sticks open or jams due to thermal contraction.

QUESTION 13:

The mission status report for STS-92 indicates that the crew plans to test a "small nitrogen-powered back pack that could allow astronauts to navigate back to the station or shuttle in the event their safety tethers became disconnected." Does this description make reference to the Russian equipment identified in the testimony?

ANSWER 13:

This is not a description of the Russian Orlan-adapted SAFER equipment which NASA is considering purchasing, but rather a reference to the U.S. SAFER equipment designed for use on U.S spacesuits, which has been incorporated into U.S. spacesuits since the STS-64 Space Shuttle mission in 1994.

QUESTION 14:

Was this equipment procured from Russia before or after enactment of the Iran Nonproliferation Act? If it was procured from Russia after enactment, did NASA seek a waiver to obtain this equipment?

ANSWER 14:

This equipment was not procured from Russia.

QUESTION 15:

The Space Subcommittee learned of NASA's plan to procure Russian goods and services under the "Exception for Crew Safety" clause by the State Department only recently. Does NASA have an obligation under the INA to provide advanced notice to the committees of jurisdiction?

ANSWER 15:

In accordance with the Iran Nonproliferation Act of 2000 (INA), as well as a Presidential Memorandum dated September 11, 2000, which delegates certain functions and authorities to the NASA Administrator, NASA has an obligation to notify the Congress in writing of its intent to procure Russian goods and services which meet the requirements of the "Exception for Crew Safety".

QUESTION 16:

When did NASA intend to inform Congress and the relevant committees?

ANSWER 16:

Having received proposals from the NASA ISS Program Office to purchase certain Russian goods and services, the NASA Office of Space Flight has been vetting these items carefully to assure compliance with the INA. The Office of Space Flight anticipates finalizing this process shortly, upon which a recommendation will be made to the NASA Administrator. Once the Administrator makes a determination per his delegated authority, Congress will be informed in accordance with the INA.

QUESTION 17:

Will NASA provide advanced notice in a more timely fashion for future waiver requests?

ANSWER 17:

NASA has adhered strictly to all provisions and obligations of the INA and fully intends to notify the Congress in writing if it determines that a procurement of Russian goods and services in accordance with the "Exception for Crew Safety" is required.

QUESTION 18:

When did NASA determine that it needed the simulation, training and integrated operations services identified in the written testimony?

ANSWER 18:

The NASA ISS Program Office initiated a proposal in 1999 to purchase a variety of Russian goods and services, and has refined and adjusted this proposal through the Summer of 2000. Concurrently, with the enactment of the INA in March 2000, the NASA Office of Space Flight has been vetting these proposals carefully to assure compliance with the law. Once this review process is complete, a recommendation will be provided to the NASA Administrator, who will make the final determination for NASA.

QUESTION 19:

Has NASA issued a request for proposals to U.S. aerospace contractors to provide simulation, training and integrated operations services to support the International Space Station?

ANSWER 19:

Developing any of the goods and services which NASA is considering to purchase from Russia would require detailed knowledge of Russian space systems. NASA has approached U.S. contractors about providing some of these goods and services, including the SAFER equipment, but has been advised by them that domestic production of these items could only be accomplished with significant delay, much higher costs and highly questionable fidelity compared to what can be purchased from Russia.

Responses to written questions submitted by Rep. Dana Rohrabacher resulting from the October 12, 2000, hearing.

QUESTION 6:

In the event that the Justice Department prosecuted NASA officials for violating the Iran Nonproliferation Act of 2000, does NASA believe that the Office of General Counsel's interpretation of the law shields program representatives from prosecution?

ANSWER 6:

The term "prosecution" generally refers to a criminal proceeding and is only initiated for violation of a criminal statute. The Iran Nonproliferation Act is not a criminal statute as it is not enforceable by fine or imprisonment. Therefore, it appears that a NASA official could not be criminally prosecuted for a violation of the INA, so there would be no need to use the Office of General Counsel's interpretation as a shield from such a criminal prosecution.

While prosecution may not be possible for a violation of the INA, a NASA official could be disciplined or dismissed for violation of a civil statute such as the INA. If such a disciplinary action were to be proposed, a good faith reliance on the opinion of counsel would be a major factor considered by the agency in deciding whether to impose discipline and, in the absence of aggravating factors, would normally be a valid defense to the proposed action. The question of "good faith reliance" would be a fact question for the Agency to resolve in processing the proposed disciplinary action.