Original link (now dead):
http://www1.jsc.nasa.gov/aiaa/horizons/Nov98/Nov98.html#Oberg

James Oberg's Testimony Before

The U.S. House of Representatives

Committee on Science

I departed from the prepared statement to discuss the FGB launch set for six weeks from now, which would orbit for seven or eight months, across a hundred million miles of space, and NASA could only HOPE that at the end of its voyage it would meet up with the intended Service module, Progress, and eventually Soyuz vehicles... I called it "the longest 'Hail Mary' pass in history and history must judge whether it turns out to be a bold, inspiring breakout or a doomed, foolhardy gamble." - James Oberg

The International Space Station and The Administration's Proposed Bail-Out for Russia - Committee on Science, US House of Representatives

October 7, 1998

10:00 am - 12:00 noon

2318 Rayburn House Office Building, Washington, D.C.

OPENING STATEMENT

Good morning. I am pleased to be able to raise some independent issues about the Russian space partnership for the International Space Station.

I want to address the following points:

- Russia's inability to fulfill its promises is NOT due to any temporary conditions which will easily go away;

- as we get closer to first launch, the wobbly assembly strategy is a clear warning that something is fundamentally wrong;

- based on recent actual Russian spacecraft experience, alarm bells should be ringing about the reliability of the latest promises that the Service Module is "almost finished" and nearly ready to fly;

- NASA overestimates the effectiveness of massive cash infusions into the Russian space industry, in part because of deliberate blindness towards ample evidence of corruption;

- recent Russian attempts to prolong the life of Mir for another two or more years would violate promises to NASA and would shatter any hope of adequate Russian launch support for ISS;

- every promised benefit of bringing on the Russians as ISS partners has collapsed, including the idea of making the project faster and better and cheaper, and the hope that it would forestall the flow of Russian missile technology into rogue states;

- the rush to launch the first elements six weeks from now is an attempt to prevent proper independent assessment of the new situation, and amounts to holding the future of the US space program hostage to continuing a failed strategy.

After consistently being wrong about Russia's ability to fulfill its space promises, NASA still clings to the hope that the problem with our relationship is only superficial, only temporary, and that there's light at the end of the tunnel. In previous years, we were told that full financing would surely come after the end of the Chechen War, or after the presidential runoffs, or after the presidential elections, or after this or that new treaty or new summit meeting or new Gore-Chernomyrdin Commission session. And it never, ever did.

But the lack of Russian government funding for ISS is not the result of the current financial crisis, as has been claimed. It is instead the policy set more than a year ago when the Russian Space Agency was told to take bank loans and sell off its assets to obtain required funds. The Russian government has not simply NOT paid the required money: it has demanded incredibly that IT receive money FROM the Russian Space Agency in the form of value-added taxes ("delivery taxes") on space hardware that the Russian Space Agency has somehow managed to fund.

Certainly, we know from history that all major new space projects prove more difficult than expected. But there is a fundamental difference between what it looked like as we approached the first flight of Apollo, or Skylab, or Shuttle, and the way things are shaping up as we approach the International Space Station. For those previous programs, the complexities and difficulties often required major adjustments in design or schedules. But because of the quality of technological management, those difficulties were confronted and solved well in advance of the final countdowns.

For example, although the space shuttle marched in place for almost two years at the Launch Minus Twelve Months point, once all the pieces fell into place those last months proceeded almost without pause toward a successful launch. But for ISS, the closer we seem to get to launch, the more the pieces are falling apart, the greater the uncertainty is about critical downstream support. This should tell us something about the technological and management inadequacies that must be repaired before committing any hardware to flight.

Using the wrong metrics is another source of problems. For example, measuring the completion of spacecraft in general, and of the Service Module in particular, by weight of

installed hardware is silly. Two years ago we were told the module was 90% complete, now it's supposed to be 98% complete with only a few systems missing. But as NASA has been told, those are often critical systems from contractors that in some instances no longer even manufacture such hardware (for example, the Solid Fuel Oxygen Generator, which caused the near-fatal fire in February 1997 for which the Russians have STILL not provided NASA the final accident report). There remains a great deal of assembly work to be done that remains out of sight and out of mind for NASA.

And software, one of the most notorious "long poles" in the ISS tent, weighs nothing, so its impact on work-yet-to-be-done gets slighted in this measurement scheme. Compare these claims with that from a manager of the ill-fated "Lewis" spacecraft who testified that the vehicle was 95% complete, even before a contract had been signed to produce the flight software.

Let's also not judge the Service Module's likely completion process by the smooth schedule we saw for the FGB. That module was amply funded and was built by a healthy, highly motivated organization. But things are different for the Service Module. A better analogy for a highly complex Russian spacecraft being built by a bankrupt space organization would be the Mars-96 probe. Two years ago, after years of delay, of cutting corners, of appeals for foreign financial support, of corruption scandals, and finally of frantic work to meet an interplanetary launch window, this most sophisticated ever Russian spacecraft was launched towards Mars, and promptly failed.

By the way, it's interesting to note how international diplomacy has interfered with accurate assessments of safety issues in this case (as in others). To this day, space officials in Moscow and Washington BOTH prefer to believe that the off-course probe and its eighteen plutonium batteries fell harmlessly into the Pacific Ocean, when the best evidence is that the wreckage is on dry ground in the Andes Mountains near the Chile-Bolivia border. Pretending otherwise is an abdication of responsibility to the health of the local population but it's convenient, and doesn't threaten to embarrass the Russians.

More relevant to the Service Module's future, and to the future of the ISS, the Mars-96 accident investigation team was led by the same Professor Utkin who assists the Stafford Commission on assessing the safety of Russian spacecraft. After months of work, Utkin's team reportedly failed to find ANY reason for Mars-96 to have failed, even with the knowledge that it already HAD failed. This does not encourage our hope that these same experts can accurately assess the future reliability of the Service Module, now being under conditions just as bad as those which doomed Mars-96.

There are plenty of other things about our Russian partners that NASA has simply not wanted to see, or has even wanted NOT to see. For example, NASA has made certain that evidence of corruption within the Russian space industry would not distract its decision makers. Regarding these notorious cosmonaut mansions at Star City which some White House experts still blindly dismiss as merely "allegations", within NASA it was a strict rule NOT to see or mention them. When one NASA official was outraged enough to describe them in a trip report, he was ordered to rewrite and resubmit the report after

deleting mention of the mansions. Other NASA workers at Star City have told me that it was made clear to them all that any overt interest in these houses would be severely "career limiting". Such a policy makes it easier for higher officials to act surprised and incredulous when confronted with independent evidence for such diversion of funds.

Another potential surprise is connected with the fate of the Mir space station. Fortified with spare parts ferried up on NASA shuttles, the Mir has flown on recently with less visible troubles than last year. But since the Russians can only build about five or six Soyuz and Progress vehicles, the kind which support Mir and which will support the ISS, any continuation of Mir beyond next year threatens to divert irreplaceable resources from ISS. So under intense NASA pressure, the Russians agreed to de-orbit the Mir in June 1999.

But many Russian space officials objected to this capitulation to NASA interests and advocated keeping Mir open for at least two years more which would require numerous additional Soyuz and Progress support flights. In recent weeks, these wishes have been transformed into active negotiations with Western financiers to prolong Mir's lifetime. Yuri Maslyukov, Russia's First Deputy Prime Minister and a protÈgÈ of the new prime minister Gennadiy Primakov, has reportedly led this effort, with support from space-hopping Kremlin aide Yuriy Baturin and from Energia Corporation officials such as V. Nikitskiy and Valeriy Ryumin (NASA generously gave Ryumin a courtesy Mir visit flight on a shuttle last June -- he came back determined to repudiate Russian promises about terminating Mir). Further, some recent repair work on Mir doesn't seem to make much sense except as preparation for extending its lifetime beyond the promised termination date.

Now, here's the rub. The latest ISS manifest released last week by NASA shows nine Soyuz and Progress flights by Russia in the year 2000 (plus a tenth Soyuz launch of a modified Progress carrying an ISS module), all to ISS. So if there is ANY extension of Mir's lifetime to 2000 and beyond, the new NASA plans must go the way of all previous plans, onto the scrap heap.

Let's step further back and view the big picture. It's clear that every promise made for the value of the Russian partnership when NASA sold the idea to the White House back in 1993 has collapsed. The idea that it would be quicker and cheaper was incredible to experts even in 1993, to everyone, that is, but NASA experts.

Meanwhile, NASA continues to use creative bookkeeping to conceal the billions of dollars of extra costs associated with the Russian partnership. One such cost is what I call the "Russian Access Tax" that the US will have to pay on EVERY shuttle launch to carry cargo to an orbit northerly enough for the Russians to reach -- a loss of a large fraction of the shuttle's cargo carrying capacity. Now, it's true NASA has enhanced this capacity to make up for these losses, but those same improvements could also be applied to more convenient orbits as well. In practical terms, this means that four shuttle flights are required to carry the same cargo to the "Russian orbit" that three flights could carry to a more efficient orbit. Over the life of the ISS, with more than a hundred shuttle flights

expected, about a quarter of them -- ten billion dollars worth or more -- are required merely to allow the Russians to be partners.

Also, the idea that pouring money into the Russian space industry could prevent 'missile mischief' with rogue states has turned out to be another illusion. Hundreds of thousands of rocket engineers in Russia have been laid off over the past decade (particularly from military missile plants) and there never were more than a few hundred free-lance employment opportunities overseas anyway. The abundance of available Russian rocket experts for hire abroad is shown by the relatively low price they can demand -- according to Russian journalist Evgeniya Albats, about $200 cash per month. And that doesn't even count full-scale contracts with Russian space corporations.

And how about all of the wonderfully valuable "Russian space experience" that we hear lip service to? NASA has shown instead that it has to learn things again on its own, such as on Shuttle-Mir, which caught NASA by surprise time and time again. And in the end, we must ask, if Russia's experience with space stations was so valuable to NASA, why is NASA again in such a space station mess?

What is to be done now? I suggest that instead of clinging reflexively to remnants of a strategy which is growing more and more threatened at many points, we concentrate on the important goal of getting a fully outfitted US Lab module operational as soon as possible. Past plans and past expenditures are, in the phrase used by pilots, "runway behind us". We have to get from where we are NOW to where we want to be.

Meanwhile, putting the FGB and US Node into orbit now, before a serious reevaluation of the program can be carried out, is an attempt to hold the entire US manned space program hostage to a failed strategy. The "rush" is on to prevent deliberative investigation of the changed circumstances vis-a-vis Russia.

There are symbolic, stylistic, and substantive steps that can be taken.

Symbolically, if the Russians are selling us all their research time for the next few years, and it's US money which is keeping the entire project on track, the station crew commanders for this phase should all be Americans. For flight two and four, cosmonauts had been designated to be in command. Under the changed circumstances, that decision should be changed.

In terms of style, NASA has proven itself incapable of learning from anyone else's experience with dealing with Russian partners, and even has great difficulty getting its own internal experience to the people who need it. This is a problem with leadership. If there are people at NASA with an unbroken track record of being wrong about Russian developments, the obvious fix is to replace them.

In terms of substance, the mindless momentum toward an FGB/Node launch based on the same illusory hopes for future Russian support, hopes that have been dashed year after year after year, should be reconsidered, if not by NASA than by those who can influence

NASA. There should be an immediate independent assessment of the actual cost of delaying the FGB/Node launch by up to six months.

Experience should have taught us that before committing hardware to space flight a very hostile place full of unpleasant surprises -- we should minimize surprises back on Earth. At the very least, the Service Module and OTHER downstream Russian support hardware must be certified "on track" by some independent evaluation, and the threat of Mir-related diversions must be ended, most reliably by the termination of that program. Such steps could take several months. Until such steps are taken, I consider it foolhardy to deliberately enhance programmatic risk -- and our vulnerability to future blackmail -- by launching the first elements.

At the same time, a credible, independent assessment must finally be made of the "no-Russian" option. We've heard the official claims that it would cost billions more, but those claims are from people who are overlooking billions and billions of dollars of operational expenses which are required for -- and only for -- keeping the Russians aboard. These same experts have consistently misjudged schedule and cost and quality benefits attributed to Russian participation, and it seems to me they deserve no further credibility from the public and from Congress.

Until we take such reality-based steps, I am concerned that NASA's long record of being repeatedly caught by surprise by new Russian problems will continue unbroken into the next century, at immense cost to the American space program and to the hopes of all of us who wish it to succeed.

Thank you for this opportunity to present these ideas.