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**History of the First
NASA Contract
with Russia**

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This story begins after the end of the cold war with the Soviet Union, after *perestroika* had its initial impact on the economy, at about the time the Russian space firms were beginning to lose government support and facing hard times ahead.

As part of the FY92 Budget approval, Congress, in its wisdom, directed NASA to investigate the Russian space hardware and determine its feasibility for use in the U.S. space program. At the invitation of the U.S. Embassy in Moscow and the Russian firm NPO Energia, NASA made a reconnaissance visit to NPO Energia to open discussions concerning Russian space hardware. The trip was successful in that NPO Energia opened their facility and proudly displayed their space hardware, launch capabilities, etc. to NASA. NASA left Russia with a heightened understanding of the desperate situation Russian space firms found themselves in with waning support from their own government. The firm was desperate enough it seemed, to peddle their hardware elsewhere if NASA wasn't a viable customer. It was made crystal clear that the firm could only continue, anything approaching their current scale of operation, with an influx of hard currency from outside Russia.

The specter of losing the technology to our economic competitors in Europe and Japan, combined with the possibility that no one would act quickly enough and NPO Energia would collapse and its technology be scattered to the winds, drove NASA to take unprecedented actions to engage NPO Energia in a year long study of its hardware technology for possible application to the U.S. space program.

In the past NASA had participated in cooperative agreements, such as the Apollo/Soyuz program, where each government supplied its part of the effort. The idea of actually out and out purchase of Russian hardware and technology was so revolutionary that I refer to it as first hand experience with "Russian Roulette," because nothing was as you expected it to be! It fit none of the U.S. paradigms for doing business with a foreign entity.

The Russian firm was attempting to privatize but its only customer was still the Russian government. It continued to function as a Government Design Bureau but incorporated itself in the State of New York with a U.S. subsidiary, and established a two person office in Washington, DC. But the firm had little or no hard currency with which to operate. They didn't even have sufficient currency for travel to the U.S. to conduct negotiations and/or discussions with NASA.

It all started for me in April 1993. I was recently hired by NASA away from DOD and assigned to the Office of Procurement. My experience in

international contracting with NATO and the F-16 co-production program caused me, in the opinion of the Associate Administrator, to be uniquely suited to develop the acquisition strategy for this first Russian procurement. This was to be NASA's first attempt to contract with a Russian firm and necessitated the development of a uniquely tailored acquisition strategy to contract with the Russians in under 30 days.

What appeared to be an impossible task was made possible by NASA senior management's commitment of top level resources, access to prior legal opinions on statutory requirements, and clear direction to simplify the process as much as possible.

The Russian firm, NPO Energia, could well use \$1 million in U.S. currency to sustain its operations severely impacted by the latest round of upheavals, coups, and finally a leadership change in Russia. In return, NASA would have access to a full range of space hardware and technology, from the Soyuz TM spacecraft, to automated rendezvous and docking systems, test facilities, launch vehicles, MIR space station modules, and even an electrical test bed for the Buran orbiter/shuttle.

NPO Energia agreed to support a wide range of special studies and tasking during the life of what would have been a one year basic contract.

NASA developed a simplified contract structure to accommodate this very general understanding between a former Communist Design Bureau and the United States Government. The use of other forms of agreements was considered but discarded based on legal and procurement advice. The advice resulted in direction to introduce the Russian firms, attempting to privatize and desiring to conduct business in the world market, to the Federal Acquisition Regulation (FAR) and the standard practices involved in doing business with the United States Government.

Creation of a simplified acquisition strategy necessitated a bottoms-up review of generally applied FAR provisions, rules for waiving and deviating from the standard provisions, and the development of unique provisions to expressly respond to the unique circumstances of a Communist firm newly privatized, but having only a single customer, the Russian government. This analysis led us to conclude that NASA could waive or deviate almost completely from the FAR. However, a rather more conservative position was settled on by NASA's Senior Procurement Executive (SPE). When the decision was made to use the FAR, the minimum compliment of regulatory provisions that could be applied were when the U.S. dealt with a foreign Government. A decision was made to continue to treat NPO Energia as a Government Bureau.

The normal provisions, applicable to a foreign government, could then be applied to the Russian contract. NASA would require Examination of Records by the Comptroller General and the Anti-kickback Provisions to reinforce the high standards required in business dealings with the U.S. In recognition of the Russian's complete lack of accounting practices, a decision was made to waive Cost and Pricing data and all pertinent cost provisions as well as all of the environmental and socio economic provisions.

The fairness and reasonableness of the price, would be established on the basis of the lowest price for the same or similar effort in the U.S. This form of price analysis would establish the lowest price in the U.S. and an upper limit for the negotiations with the Russians. In the absence of accounting principles, only a fixed price contract was possible, and as the Russian ruble devaluation was running around 10 percent per month, only a U.S. currency contract was considered viable. In under a year the ruble has devalued over 100 percent. For the year following the contract award the ruble devalued a full 1000 percent.

Advance payments were also considered but discarded as precedent setting and a form of monthly payments in 12 equal increments was approved by the SPE and the NASA Legal Office. Concrete deliverables in the form of studies and tests were to be specified at the outset, but not separately priced due to the complexity of introducing the Russians to product based cost estimating, pricing, and payments. The subject of labor hour pricing was considered but also wisely discarded as too complex for this first contract.

In opening the discussion with the Russians concerning salaries and labor hour rates the Russian's responded, "We sell space hardware not people." This set the stage for the remaining negotiations with the Russians.

The formality of the affair was just the first of many surprises. Our negotiation team was referred to as a delegation and treated with all the protocol of a U.S. Government or State Department group representing the President of the United States. We were met by the General Designer (also General Director) of the Russian Space Program. Our "delegation" was led by the NASA Assistant Administrator for Russian activities and the Associate Administrator (AA) for Space Systems Development (OSSD). This degree of protocol was somewhat natural as both sides remembered well the relationship and formalities of the Apollo Soyuz test project of twenty years earlier.

Each side made official welcoming statements. Russian/English interpreters were indispensable as there was a complete absence of bilingual membership on either side, notwithstanding, the fact that the Russian side had many Soyuz engineers experienced with NASA in the 1970s on the Apollo/Soyuz test project. On the U.S. team the AA for OSSD was the single U.S. Apollo/Soyuz member. It was clear from the warm greetings that ensued that he was held in high regard by the Russian team. This prior association built on friendship, trust, and ultimately success was invaluable to NASA in the conduct of these negotiations.

The first round of negotiations called for separation of the technical and contracting teams. The Russians saw the activities as separate and distinct, indicating the work agreed to would have little or no relationship to the price and other conditions in the contract.

The model contract presented by NASA required translation into Russian. General Provisions, normally incorporated by reference, were included in full text and then translated into Russian. Each sentence and each paragraph was discussed at length, explained, clarified, and even then the Russians proposed changes to all of the General Provisions and the Standard Government Data Rights Provisions.

Each deadlock required the highest member of the U.S. delegation to convene a meeting with the Russian General Designer. No member of the Russian delegation had the authority to negotiate. The General Designer singularly had the final say, but he spoke only to the head of the U.S. delegation. His deputy dealt with the AA and the Russian Program Manager with the U.S. program manager. Each level exchanged with their equivalent/counterpart at every lower level.

During negotiations no agreement was made on any subject. Positions were exchanged and then we moved onto the next issue. At the end of the negotiations a contract was developed reflecting NASA's position with no confidence that agreement could be reached in total or on any given issue with the Russians.

The eleventh hour of the last day, negotiations were stopped; champagne and brandy were served to all to celebrate the Deputy General Designer's birthday and speeches were made round the table concerning our mutual cooperation and success.

Negotiations resumed in earnest after the celebration; the objections were re-stated; the potential for closure seemed impossible. At this point, when all seemed lost, all members of both delegations were called to the General

Designer's office. Each lead negotiator described their sticking points to the group. All but the top management of both teams were then excused.

After several minutes of discussion, the General Designer called for his negotiating team. When the team returned to the negotiating table, they withdrew all exceptions, the contracts were prepared for signature and a signing ceremony was planned. The NASA Administrator had just recently communicated his desire to sign the first NASA/Russian contract, together with the head of the Russian Space Agency, Mr. Koptev. This signing ceremony was to take place in Washington, DC. This presented a small protocol problem in that the General Designer, Mr. Seminov, also wanted to sign the contract.

A compromise was struck after the General Designer was informed that in the U.S. only a warranted contracting officer could sign the contract; however, in NPO Energia it was he who could decide who would sign for NPO Energia. The General Designer elected to sign the contract himself! The signing ceremony was moved to a social gathering, apparently permitting an exchange between the General Designer and a lower level delegation member, the Contracting Officer. Hands were shaken, embraces and kisses exchanged, and the contract signed amidst a fanfare of photographs noting the historical aspect of the moment. This final signing in Washington D.C. between the two agency heads constituted a top level ratification of the signed contract.

The short suspense of this contract action, made it impossible to reprogram funds above \$1M; thereby, limiting NASA to a negotiation position under \$1M or \$999,999.00. The Russians hardly understood the subtlety involved in the \$1.00 reduction. NASA, in the interest of living up to its initial overtures of \$1M, offered a single \$1.00 bill to the General Designer, in addition to the contract amount, thereby meeting expectations for a million dollar agreement. The first NASA \$1.00 is currently on display in the space museum at NPO Energia in Kalingrad, Russia.

This first Russian procurement became the pathfinder and set the standard for the Agency for future negotiations with the Russians. It was distributed to the NASA Centers, JPL, and several NASA contractors planning subcontract activities with the Russians.

Experiences in doing business with the Russians acquired over the next year were shared throughout NASA and among contractor personnel in the form of lessons learned. Some of the following lessons learned remain peculiar to the Russians and reflect their recent transition to a free market economy after generations of Communist Rule:

1) Communication links between locations in the U.S. and Russian locations in the Moscow area were nonexistent or of such poor quality as to perturb normal program interaction, management and oversight.

A special telephone and electronic mail link was established with U.S. Government Furnished Equipment (GFE) to the contract to resolve this problem. Plans for expanded communications links were developed throughout the first year of the contract.

2) Overcoming basic mistrust concerning transfer of information which the Russians feared could be used to reverse engineer and thereby acquire unique Russian technology was a major problem.

Training in U.S. contracting and pricing alleviated some of the Russian's concern when it was recognized that U.S. law would be violated if NASA or American contractors attempted to steal Russian technology delivered under a U.S. government contract. But, ultimately, personal trust between individuals was more important in overcoming this basic problem. The Apollo/Soyuz experience was very valuable in that they determined that U.S. type documentation simply didn't exist in the Russian system. So the Russians' continued reluctance to release some information related to the fact that it simply didn't exist. Where necessary, the U.S. technical staff created the desired documentation with the help of their Russian counterparts.

3) Training in U.S. cost and pricing techniques, however, did not facilitate future negotiations. The Russian financial experts totally ignored the rapid devaluation of the ruble but seized on the concept of establishing labor estimates by task for future work in developing their cost estimates.

The Russian concept was to negotiate labor hours required and then apply world market rates as a means of developing a fair value for Russian work. Cost base contracting will remain impossible in Russia as long as there are no accounting systems to collect and allocate costs to the products and the ruble continues to fluctuate so radically. Other means for developing cost estimates needed to be developed. Several approaches were considered: cost estimating relationships, labor hours for the same or similar work in the U.S., the use of Russian wages adjusted for inflation, and their comparison to other U.S. industry activity in Russia. All of these were somewhat successful and they tended to converge on approximately the same cost range for a given set of tasks.

4) Translation of reports and existing documentation remains a major effort under a Russian contract. The resources applied to this problem are in direct competition with resources required for the technical assessment products of the contract which are of principal interest.

Translation software tools were evaluated at length. The best products on the market were supplied to NPO Energia. Human translators found them to be insufficient for the task at hand. Most were designed for business or legal purposes and not for space translation technology purposes. Recognizing a serious need, several firms in Russia began the development of space technology software called "Stylus for Space." Together with a Small Disadvantage Business (8A) firm in the U.S., they are marketing this software around the world. NASA's and the Russian firm's evaluation of the software indicates it is the best Russian to American, American to Russian translation system on the market. The rumor is the software was developed originally by the Soviet KGB. (It makes you wonder what the CIA might have that would further facilitate U.S./Russian joint activities).

5) Availability of hard currency, which is defined as anything but the ruble, became a significant issue.

The first program review in the U.S. was almost canceled due to a lack of hard currency. Airlines in Russia were no longer accepting rubles as payment for plane tickets. Payments under our first Russian contract didn't flow smoothly, initially. This was because invoices were not prepared properly or submitted in a timely manner, and later because the banks involved in transferring money to Russia were inexperienced. In addition, the Russian banks denied receipt of the funds, without evidence from the forwarding bank, which included serial numbers, dates, times, amounts, etc.

Special advance travel payments were required to overcome this problem. Tickets were prepaid by NASA; per diem was transferred to a U.S. bank; even temporary loans were made by the NASA Credit Union to support the Russians while they attended their first program review in the U.S.

During the year NASA also learned that the Russian bank also taxed the payments to NPO Energia, limiting the hard currency transferred to the company to 20 percent of the total payment. The total payment was adjusted in the following manner.

a) 40 percent was converted at an unfavorable ruble rate,

- b) 40 percent was converted at a favorable ruble rate (at least favorable for that day) and,
- c) 20 percent was paid in hard currency to the Russian firm.

Recognizing the Russian firm's need for the hard currency as a critical element of all future negotiations included reimbursement for travel, shipments, and work in the U.S. This was critical to the success of the first Russian contract and will continue to be critical to all future contracts as long as the ruble fluctuation and Russian inflation is out of control.

6) Rights to Data remains a problem in the first Russian contract. The contract provides that all data first produced under the contract shall be provided to the U.S. government with unlimited rights. This is standard under U.S. Contracts.

Unfortunately, to date, everything that has been delivered under the contract, except for a study plan, has been marked "Proprietary" indicating the Russians' continuing concern that their space technology will be stolen from them unless carefully protected.

There were also lessons learned by the Russians after a year of negotiating and working with NASA and NASA's contractors. These lessons were freely discussed with me and represent a highly enlightened Russian negotiator:

- 1) Even in the first negotiations, NPO Energia understood the nature of fixed price contracting. Perhaps their only experience is this simple form of contract which defines what NPO Energia would do for a given price. Examples included: Soyuz trips to MIR space station by Japan, France and Germany. There were agreements/contracts under the Communist system also. It's clear that the vendors involved with NPO Energia made commitments and delivered high quality products on schedule. The resources, however, that were applied by the vendor were normally unknown by NPO Energia and probably came directly from the Soviet government not through NPO Energia.
- 2) During the first round of negotiations the Russians challenged the use of U.S. law. Why shouldn't we use Russian law, or even the law of a third impartial nation?

NASA pointed out that all the contract provisions had precedence in U.S. law not in Russian law. Therefore, any future disagreements would require consistent interpretations to resolve. NPO Energia then suggested

we apply independent arbitration under Geneva, Switzerland laws. In these first contract negotiations, NPO Energia conceded to U.S. law. However, in later negotiations with NASA contractors, NPO Energia has insisted on arbitration under Geneva, Switzerland law.

3) At each negotiation throughout the year, the Russians refused to accept the Examination of Records by Comptroller General clause.

Because Congressional approval is required to deviate from this provision, NASA has argued successfully to retain the clause and to date the clause has been included in NASA prime contracts and subcontracts with Russia. As the Russian Government controls VISAs into the country, the comptroller general could only examine records at the invitation of the Russian Government.

4) Achieving a fair and reasonable price for work in Russia remains a major challenge. NASA started by scoping the value of the work, considering a myriad of factors. This was essential as the Russian's estimate of the value of contract work exceeded NASA's on the order of a factor of ten. To encourage the Russians to develop proposals based on unrealistic estimates would have been counterproductive to both parties. But in short order, the Russian's lesson learned was to negotiate other elements of the agreement:

Advance Payments or milestone payments (front loaded) for supplies, services, data and transportation remain critical to the Russians. The Russians have no methodology for scoping the work, no estimating capabilities, and no historical data, so achieving agreement required application of flexible alternatives to trading price offers. Advance payments or milestone payments are one of the key alternatives. Another alternative is descoping or revising the work required to reach agreement. Yet, another alternative is assuring work in the U.S. and reimbursement of travel for the Russian program office personnel. (The opportunity to visit the U.S. may be a fringe benefit for the Russian employees.)

In later negotiations the Russians sought salary payments while in the U.S. These U.S. salaries were imperative for the Russians to obtain hard currency while in the U.S. The firm paid hotel bills and covered food, but the Russian employees were virtually penniless during their time in the U.S. The Russians successfully negotiated salaries of \$7.00 to \$10.00 an hour with a bonus of an additional \$4.00 to \$6.00 for English proficiency. The lesson learned by the Russians is that there are elements other than price that can be negotiated and that have financial benefit to the company and to the employee.

For the early discussions of a joint space station this issue of pricing Russian effort loomed as a show stopper. The Russians sought to use U.S. techniques for cost estimating to determine the value of their supplies and services. NASA continued with the initial approach of scoping the work for the Russians and providing them with the U.S. Government estimate of value in Russia to help focus their efforts and expectations. In the joint space station discussions we again fell into the trap of separating the technical and business negotiating groups. The results were predictable. The technical team developed, independent of cost, an extremely robust Russian contribution to the joint station. The Russian financial groups are assuming that the more the Russians contribute, the higher the U.S. contribution to Russia would be. So a lesson NPO Energia should have learned, perhaps the most important lesson of all, has not yet been learned. The U.S. contribution is a very political issue because it diverts U.S. assets away from U.S. companies offshore to Russia. This diversion of U.S. assets to the Russians is further exacerbated by the downsizing of the U.S. budget. The future of the joint space station may succeed or fail on this single issue.

In conclusion, many of the lessons learned need to be unlearned. Use of a contract to engage a non-market business makes no sense at all. Nothing about the agreement between these parties fits a market economy's idea of a contract and certainly not a U.S. Government contract. In hindsight, use of the agreements authority vested in the organization under the Space Act or under the Grants and Cooperative agreements authority would have been more appropriate. Only recently has an interpretation of the latter of these agreements authority been expanded to permit payment of appropriated funds.

Had this interpretation existed at the time the first contract was signed in Russia, there would have been no "First Russian Contract." The agreements authority provides the flexibility necessary to reflect the unique relationship necessary to conduct business under the circumstances existing in Russia today and for sometime in the future.

Too much time and energy was wasted on U.S. regulations and statutes designed for U.S. industry based on historical precedence which had no relevance in Russia. The value for money invested in this first contract was ten fold but the effort wasted on U.S. contracting rules and regulations, if avoided might have resulted in 100 fold return which would have clearly been a "Win Win" situation for both parties.