MEMORANDUM

To: NASA Launch Team Members
CC: Mission Critical Chemistry Task Force Leader
From: Director of Communications
Date: October 16, 2003
Re: Guidelines for Communication Between Team Members

As we quickly approach the collaborative "Mission Critical Chemistry" project, I would like to address some communication/security concerns. The following regulations and guidelines are meant to ensure that we open a fruitful collaboration with our IMP colleagues, and to insure that team members do not accidentally violate US and international trade laws. This latter point is especially important in light of Boeing's recent $10 million fine (http://abcnews.go.com/sections/tech/DailyNews/csm_launch990922.html). As you may know, the SeaLaunch project is developing low-cost satellite delivery systems based on converted oil platforms. It is a collaboration between four companies: Boeing Inc. (United States), Angio-Norwegian Kvaemer Group (Norway), RSC Energia (Russia) and KB Yuznoye/PO Yuzmash (Ukraine). Recently, Boeing was fined for violating export control policies. These violations arose because researchers were unfamiliar with the official policies regarding sharing of sensitive technologies.

Communication Regulations

To prevent violations similar to those that plagued Boeing, we have instituted the following strict regulation:

> ***All communication between NASA and IMP representatives must occur through the mailing distribution lists (dlists) established for this purpose. For the duration of this project, you may not phone or send email directly to your IMP team members.***

These lists include our legal experts, who will ensure that all communications remain within specified guidelines. The email address of your dlist was given to you at the start of the project. (If you do not have the email address of your team, please contact mars@ir.chem.cmu.edu).

Communication Guidelines

I also want to provide some general guidelines concerning communication between team members. Many of you are new to international collaboration, so I will provide examples of good and bad techniques for introducing yourself, requesting information, correcting information, and supplying information.

Introducing Yourself

Please take some time to introduce yourself to your teammates: send out a brief introductory e-mail. Working with strangers can be uncomfortable, and your teammates will be just as important to your success as you are to theirs. In your email, tell them who you are, what your background is, and what interests you have (either academically or

personally). If you understand each other personalities, talents, and interests, you will have a solid foundation for your interaction over the next few weeks.

- **Bad example:**
  Hi. I'm a student at Carnegie Mellon. I'm looking forward to working with you.

- **Good example:**
  Hello. The two of us here in the group are both chemistry majors. Jeri is a member of the varsity volleyball team, so she is much more familiar than Matt is with working in groups. Matt, on the other hand, has a little bit more experience with chemistry since he has been here an additional year. We both love to go biking, and our friends typically find us swimming some laps in the campus pool. We find exercise to be a good stress-reliever.

  We are excited about the opportunity to share some of the investigation work needed for the project; it should make all of our busy lives a little bit easier! Both of us check our email about twice a day, so please email any and all questions and/or updates that you have. Our project will probably go much more smoothly if we communicate throughout the entire process instead of just at a few checkpoints. Well, we guess that is all for now. Let us know if you have any initial questions for us. We're looking forward to working with you.

Requesting Information

You may run into situations where you want one of your teammates to try an experiment for you. Along with each request, always explain why you want the experiment performed, when you would like the results, and what type of information you need (raw data, calculations).

- **Bad example:**
  Run the trajectory simulator "Energy from fuel" set to 2.5kJ/sec.

- **Good example:**
  I like all of our numbers so far, but I think we might be able to get by with "Energy from fuel" set to 2.5. This would decrease our total payload, and make it more efficient. Could you please run that experiment by Friday, and send me the raw data from the experiment? If 2.5 works, we can move on to the next phase. Just let me know your schedule. Thanks!

Correcting Information

You may also run into situations where another member provides incorrect calculations. Do not just email them that they are 'wrong' and give them the 'right' numbers. With each correction, you should identify the equation which produces the number in question, provide the numbers that you used in your calculation, and explain why you feel your numbers are more accurate. You may find that their 'wrong' numbers were based on different assumptions/approaches, rather than an error in arithmetic.

- **Bad example:**
  Change the value in "cell" to 90.7.

- **Good example:**
  Though I agree with all of your numbers, I think you'll find that if you check the value in "cell," the decimal point has been shifted accidentally to the left. It should probably read 90.7 instead of 9.07. The error, I think, is just a typo rather than a difference in calculation.

Supplying Information

Just as you may request your partners to perform experiments, they may request the same of you. You should always promptly respond and clarify any points about how to do the experiment, as well as supply the timeframe in which you will perform the experiment.

You may encounter a time when you do not agree with a request. In successful teams, striving for agreement usually involves both discussion and compromise. At times, you may want to outline in an objective manner why you do not agree with the strategy involved in the request. Other times, especially if your team member isn't persuaded by your reasoning, you may need to follow through on the request. If you think there may be a misunderstanding, please feel free to direct a question to the project supervisor to help the group get back on track.

- **Bad example:**
  I think you got "cell" wrong. It should be 45.99, not 45.29.

- **Good example:**
  During a routine check of the values you had in your last e-mail, I noticed that the value for "cell" has been changed to 45.29. According to my calculations, this new value will result in a deviation from launch parameters that will cause a crash. If you change the value in "cell" to 45.99, we can keep that from happening.