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December 20, 2006

Dr. Peter E. Dunn, Ph.D.
Associate Vice President for Research
Research Integrity Officer
Office of the Vice President for Research
Hovde Hall of Administration
Third Floor
610 Purdue Mall
West Lafayette, IN 47907-2040

PRIVILEGED AND CONFIDENTIAL
ATTORNEY WORK PRODUCT

Re: **Facts-Correction Regarding Memo from Dr. Dunn Dated December 15, 2006**

Dear Dr. Dunn:

Upon review of your letter dated 12/15/2006, Professor Taleyarkhan has noted several factual errors made by the Inquiry Committee ("IC") – perhaps due to their lack of familiarity with the specifics of technology associated with acoustic inertial confinement (bubble) fusion or perhaps due to our inability to explain things completely.

This letter is, therefore, submitted as a respectful request to correct some facts that appear to have been overlooked or misconstrued during the course of deliberations by the IC. It is submitted that these factual errors led to the several admonitions related to misjudgment. This mainly concerns the issue of what constitutes independent confirmation.

Per my meeting yesterday with Mr. Kealey, I understand it may be possible, if you agree with the contents of this letter, to strike and reissue your 12/15/2006 letter or issue an addendum to it.

On page 3 (item 3) of the letter the IC offers the following as needed characteristics for independent confirmation:

3a. The experimental apparatus with which the experiment was performed would be significantly different from that used in the initial experiments. In particular, the critical gamma-ray detector (Beckman Instruments) would not be the very same one (with the same calibration curve) used in the earlier experiment.

3b. The experiment would be performed by scientists who were not associated with Purdue University, and certainly not by individuals having close relationships to Dr. Taleyarkhan.

Dr. Peter E. Dunn, Ph.D.
December 20, 2006
Page 2

3c. The involvement by Dr. Taleyarkhan would be minimal.

1) **Facts related to the 2005 Confirmation Experiments by Xu et al. reported in NED journal**

In relation to item 3a above, the reading of the IC is factually wrong when applied to this situation. The IC deemed this to be a "critical" detector system used by Xu et al for their 2005 NED paper, which should not have been the same as the one used by Taleyarkhan et al. With due respect, the IC was wrong in making the assumption that it was the same detector. In fact, it was *not*. As an aside, the LS6500 Beckman spectrometer is not a gamma-ray detector as quoted in the 12/15/06 Dunn memo; it is a beta spectrometer. Tritium emits beta rays, not gamma rays, during decay.

I attach hereto documented evidence that the LS6500 Beckman spectrometer used by Xu was *not the same*, and *neither was the calibration curve*, as the one used by Taleyarkhan et al. (Science, 2002). The instrument used by Xu et al. for their studies was *different* and was provided to Purdue University on loan by DOE's Dr. Michael Murray (a recognized expert with over 20y experience in tritium detection) who, at Taleyarkhan's request, personally traveled to Purdue to not only deliver it, set it up, and conduct the checks needed, but then he (Murray) performed the calibrations to develop the calibration curve used later at Purdue. Thus, the "critical" machine-instrument was totally different as is attested to by Dr. Murray. Furthermore, in Xu's experiments, the detection was performed with the organic liquid-based Ultima-Gold scintillation cocktail versus the use of an aqueous-based Ecolite cocktail by Taleyarkhan et al.

Further, the test reactor cells undergoing sonofusion used in Oak Ridge and at Purdue were distinct and different. The electronic components and data acquisition systems used at these two places were different. The location of experiments was obviously different. The experimental design and approach utilized by Xu et al at Purdue for their 2005 NED paper were also *not the same*, but very different in a fundamental way. Whereas, Taleyarkhan et al. used an accelerator based 14 MeV neutron microsecond-pulsed neutron source, Xu et al. at Purdue used a continuous spectrum and randomly emitting neutron sources, both Cf-252 and Pu-Be. Their experimental geometry was also radically different and Taleyarkhan had nothing to do with this experimental design which, basically, was dictated as a means to get around the fact that Purdue's Nuclear Engineering School simply did not have the apparatus available to Taleyarkhan et al. at Oak Ridge National Laboratory.

Finally, as the IC has itself confirmed during its review of evidence, Xu et al. conducted the experiments, acquired the relevant data and analyzed the data independently *with no participation* by Taleyarkhan et al. We submit that these changed facts would also lead to a different conclusion relative to Dr. Taleyarkhan's "lack of judgment."

Dr. Peter E. Dunn, Ph.D.
December 20, 2006
Page 3

2. Confirmations by Forringer et al., and Bugg et al. in 2006

The IC's conclusions relative to requirements of the 3a,b,c characteristics to the Forringer and Bugg confirmation experiments are also factually wrong.

For the record, the May, 2006 visit by Professor Forringer and his two students was one in which the group has gone on public record in their university's November 17, 2006 Press Release as stating "Two students and I went to Purdue University in May to conduct our own research, collecting, analyzing, and interpreting our own data that substantiated his previous work." Indeed, Forringer and his students used randomly selected detectors manufactured by a private company Landauer, Inc. that were *not previously used* at Purdue. These were *new* and *different* detectors.

Furthermore, regarding the independence-related criterion for personal associations, the fact is that Dr. Forringer's University approached Taleyarkhan not the other way around. Forringer et al. from Texas University requested to use Taleyarkhan's laboratory and system as a user-facility (as is common practice in the world today) during early 2006 after the 3/2006 nature articles came into being. Prior to this Taleyarkhan had never met, nor known of Forringer or his students. Forringer et al. were *independently sponsored* by LeTourneau University under a grant they procured from the Welch foundation.

Even more importantly, Forringer was completely new to the sonofusion field and came without preconceived notions and, therefore, to Taleyarkhan he and his institution represented a request that came without prejudice, unlike others (detractors and supporters) already in the field. Forringer et al. performed their *own* calibrations, conducted their tests with their *own* randomly selected detectors, read their *own* data including from the crucial neutron track detectors for unambiguous tell-tale signs of neutron emissions, then wrote their *own* paper with *no* input from Taleyarkhan and submitted and defended their own paper. Furthermore, they performed their own due diligence checks/surveys to negate the charges of contamination from Cf-252 made by Taleyarkhan's detractors as cited in 3/2006 Nature articles. Therefore, it is submitted that, the IC's three characteristics for independent confirmation were satisfied in the Forringer case.

The same statements can be made for Professor William Bugg (past Head of Physics at University of Tennessee and currently research professor at Stanford University's SLAC facility) who also attempted to confirm Taleyarkhan's experiments conducted at Purdue.

Therefore, in addition to the 2005 confirmation report by Xu et al., in 2006 alone there are an additional 2, not 1, set of scientists/physicists groups who reported confirmation separately and

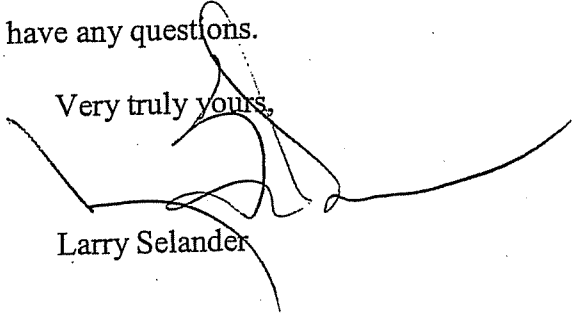
Duane Morris

Dr. Peter E. Dunn, Ph.D.
December 20, 2006
Page 4

meet the spirit of the 3a,3b,3c characteristics needed for independent confirmation. We believe all of this information was submitted in the binder in detail to the IC by Taleyarkhan as part of this inquiry. Perhaps we did not explain it properly.

I look forward to discussing this with you if you have any questions.

Very truly yours,



Larry Selander

cc: R. P. Taleyarkhan, Purdue University
W. Kealey, Stuart and Branigan

Selander, Larry

From: Selander, Larry
Sent: Wednesday, December 20, 2006 3:44 PM
To: Selander, Larry
Subject: FW: LSC memo

From: "Murray, Michael E (ANN)" <murrayme2@y12.doe.gov>
To: "Rusi Taleyarkhan" <rusitaleyarkhan@msn.com>
Subject: LSC memo
Date: Mon, 18 Dec 2006 12:49:18 -0500

>Here it is.

>

>Michael Murray

>Radiological Assistance Program

>865-574-5838 pager: 865-873-4122

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>

>December 18, 2006

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>Dear Professor Taleyarkhan,

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>Per your request I am writing to confirm that during December, 2003:

>

>- As a goodwill gesture per your request to me and to assist Purdue's
>efforts in the area of tritium spectrometry, I personally transported
>the Beckman LS6500 spectrometer to Purdue on loan from the Department of
>Energy's Oak Ridge National Laboratory,

>

>- This particular spectrometer that I arranged for loan to Purdue is
>different from the instrument utilized by the ORNL Biology staff in
>their facility at DOE's Y-12 plant where your group's bubble fusion
>samples (reported in Science, 2002) were analyzed for tritium,

>

>- The above-mentioned spectrometer was an instrument in my custody as an
>excess item from the many purchased by ORNL in the past (that at the
>time in 12/2003 was not needed by the then active research groups in Oak
>Ridge) and hence by procedure, ORNL could loan it to educational
>institutions for approved activities,

>

>- I have over 25 years experience in beta-and other nuclear emission
>related spectroscopy at various laboratories. I personally set up this
>instrument at Purdue University and conducted the needed checks for
>functionality and developed the calibration curve using NIST traceable
>standards, and provided guidance on proper usage for low-level tritium
>counting before departing,

>

>Beckman is a premier instrument manufacturer and has a reputation for
>producing high-quality liquid scintillation instruments. Regardless,
>instruments manufactured by the same manufacturer will have their own
>measurement capabilities and detection efficiencies which can be
>affected due to high-gain PMTs, scintillation cocktails, and the
>environments in which they are utilized. However, by knowing the
>specifics of an instrument and using established analytical techniques,
>a sample's tritium concentration can be consistently determined using
>various instruments. Please contact me if any additional clarification
>is needed regarding the loaned instrument or liquid scintillation in
>general.

>

>Sincerely,

>

>

>Michael Murray

>Senior Scientist

>DOE Radiological Assistance Program

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