

**DECLARATION OF MICHAEL PEARLMAN, PH.D.**

I, Michael Pearlman, pursuant to 28 U.S.C. § 1746, hereby declare as follows:

1. I have been employed by the Smithsonian Institution (“Smithsonian”) since 1968. My current position at the Smithsonian is a Scientific Program Manager at the Center for Astrophysics | Harvard & Smithsonian (“CfA”). The CfA is a collaboration between the Smithsonian Astrophysical Observatory (“SAO”) and Harvard University (“Harvard”). I have held this position since 1972. I have a Ph.D in Physics from Tufts University , MS in Management from the Massachusetts Institute of Technology (“MIT”) Sloan School. I make this declaration based on my personal knowledge or upon information furnished to me in my official capacity.

2. My work at SAO includes a collaboration with NASA to coordinate and encourage activities in international space geodesy to assist in understanding the properties of Earth. In furtherance of this role, I hold senior positions in two related international organizations: The International Laser Ranging Service (ILRS) and the Global Geodetic Observing System (GGOS). The members of these organizations coordinate their data acquisition, and share their data, ground system and satellite information, and scientific results. NASA supports my work at SAO to provide technical and management support for NASA’s Space Geodesy Program. Participation in these international organizations support space science, which is integral to SAO’s mission and a continuation of my role in the international science community that goes back more than 50 years at SAO.

3. David Arnold is a recognized authority in laser retroreflectors on satellites and he has analyzed the performance on many satellites, including for many years as an employee of SAO. After David Arnold’s retirement from SAO, he expressed interest in coming back to work on retroreflector studies on a more limited basis. I was able to secure funding for an independent contract with Mr. Arnold under my NASA grant, which included analysis and design studies of

retroreflector arrays to determine properties of these arrays necessary to properly analyze the data and examine concepts for array designs that could improve their performance. David Arnold's independent contract with SAO was limited to approximately 240 hours of work per year. As spelled out in the signed Purchase Orders between Mr. Arnold and SAO, the annual payment to Mr. Arnold was limited to about \$15,000 per year. *See* Exhibit A (Collection of Purchase Orders from time period discussed in Complaint). Included in Mr. Arnold's independent contract funding was travel to an international meeting each year where he was able to report on his work, nurture and maintain contacts with others in the field, and make new contacts to expand his work. David Arnold reported directly to me during the entire period that he worked as an independent contractor for SAO.

4. With respect to the Lares-2 satellite discussed in Mr. Arnold's Complaint, I asked Mr. Arnold to assist with the assessment and evaluation of the LARES-2 satellite for inclusion in the International Laser Ranging Service. This is evidenced by a March 2016 email from me to Mr. Arnold that he attached to his Complaint. That email makes clear that only certain initial work would be funded through his independent contract with SAO. This initial work included among other items, concept and design studies to assess LARES-2 for inclusion in the International Laser Ranging Service to the extent that funds allowed.

5. My decision to direct Mr. Arnold to assess and evaluate the LARES-2 satellite for inclusion in the International Laser Ranging Service was consistent with the signed Purchase Orders governing Mr. Arnold's independent contract with SAO. For example, Purchase Order 316869 makes clear that Mr. Arnold's contract with SAO included analysis and testing of retroreflector arrays for missions that will be tracked by the International Laser Ranging Service ("ILRS") and collaboration with other investigators on projects related to laser ranging. *See* Exhibit A at 5. In fact, that LARES-2 satellite was explicitly referenced in Purchase Order 399921

in which Mr. Arnold's Statement of Work includes "design studies for LARES-2." *See* Exhibit A at 12. It was well within my job duties for SAO to direct Mr. Arnold to conduct the studies on the LARES-2 satellite.

6. Following the assessment and evaluation of the LARES-2 satellite for inclusion in the International Laser Ranging Service, Mr. Arnold identified improvements that could be made to the design of LARES-2. Mr. Arnold asked me whether he would be permitted to do work with the Italian Space Agency on the re-design of the LARES-2 satellite. I had no issues with Mr. Arnold taking on additional work as he was only on a limited independent contract with SAO. As an independent contractor, David Arnold was permitted to take on additional work or contracts with other entities or organizations outside of SAO. While there may have been work that Mr. Arnold did above and beyond the terms of his contract with SAO, I was always clear that his payment from SAO was limited to the parameters outlined in his Purchase Orders due to limited funding. I understand that Mr. Arnold received funding directly from the Italian Space Agency in the amount of 5,000 Euros to do additional work on the LARES-2 satellite.

7. The work that Mr. Arnold did for SAO with respect to assessing the LARES-2 satellite for inclusion in the International Laser Ranging Service was consistent with his independent contract with SAO because the contract included concept and design studies on the LARES-2 satellite. However, once Mr. Arnold endeavored to assist the Italian Space Agency with a complete re-design of LARES-2, Mr. Arnold was no longer operating within the confines of his Purchase Order with SAO and instead was engaging in his own separate work that I had understood was in consultation with the Italian Space Agency. At all times, Mr. Arnold was aware of the terms of his Purchase Order and the fact that his payment from SAO was limited to a maximum of \$15,000 per year.

8. David Arnold terminated his contract with SAO in November 2018 and sent SAO a final invoice for \$15,000. SAO promptly paid that invoice. Mr. Arnold has not done any independent contract work with SAO since.

9. Any written correspondence with Mr. Arnold on the issues raised in this declaration was sent through my CfA email address, which is my Smithsonian-issued email account. Communications related to his independent contract work for SAO was conducted during my normal business hours.

I declare under penalty of perjury that the foregoing is true and correct.

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Dr. Michael Pearlman  
Scientific Program Manager  
Center for Astrophysics | Harvard & Smithsonian  
Smithsonian Astrophysical Observatory  
Smithsonian Institution

Dated: May 28, 2021