The following comments are directed to questions 2-4 in the May 1, 2018 request for information published by the National Institute of Standards and Technology.

I have been a patent attorney for over 25 years and have worked in the technology transfer profession for a major research institution for the last 17 years.  These comments are made on my own behalf as an individual professional in this field and do not necessarily reflect the position of my institution on these matters.

To begin with, it is important to understand the challenge that confronts all academic technology transfer offices.  Federal funding supports basic research that, by its nature, is not directed to solving a particular commercial problem or developing a product.  As a result inventions made in academic labs, including federal labs, tend to be embryonic from the perspective of commercialization.  Because they are embryonic the commercial potential of these inventions is highly speculative.

Therefore it should also come as no surprise, but often does to those outside the field, to learn that the vast majority of inventions academic institutions seek to protect through patents fail to succeed commercially.  For example, a benchmarking study by Columbia University reported that only 5-20% of inventions patented by universities ever get licensed (See Herskowitz and Butterfield, “Know thyself: how well do you understand your own IP strategy?”, Intellectual Asset Management: 9-15, July/August 2016).

The expense of patenting all those inventions which do not get licensed must be borne by the individual institution.  Federal funding cannot be used for patenting.  Institutions must make the deliberate decision to invest their own resources into the speculative venture that is technology transfer.

So why do they do it?  The answer to this question is the key to understanding the success of many academic technology transfer efforts and how to translate this success to federal labs.

At the highest levels of leadership academic institutions have come to appreciate that technology transfer can lead to many benefits.  First and foremost, technology transfer gives basic research the best chance to be developed into products that benefit the public.  It can also catalyze the formation of new companies and create jobs, as well as providing a different and unique creative outlet for interested researchers.  Technology transfer can also generate income, although history shows that most institutions spend more on technology transfer than they get back in return.  See Abrams, I. et al, “How Are Universities Tasked and Motivated-Is It All About The Money?”, Research Management Review 17(1): 18-50 (2009).

As a result of the appreciation of these benefits, academic institutions by and large support technology transfer in spite of the financial risk.  They give their technology transfer offices the latitude to fail financially because they realize their efforts support the broader institutional mission of advancing research, supporting their faculty and benefiting the public.  Over time this support creates a culture within most academic communities which accepts risk-taking and failure as part and parcel of the technology transfer process.

Unfortunately researchers in federal labs, and the technology transfer professionals who serve them, do not appear to enjoy this same culture.  Instead the fear of failure and the consequences that may come with it, whether real or perceived, tend to discourage risk taking.  Inactivity on the other hand appears to be well tolerated within federal labs with respect to technology transfer.

To address this issue, the federal government must work hard to create the same culture enjoyed by researchers at academic institutions.  Leaders must make it clear to researchers and technology transfer professionals in federal labs that they are expected to take risks and that they understand there will be many failures for every success.  Once leadership effectively conveys the message that technology transfer is supported, a culture of innovation and engagement in the technology transfer process should begin to grow in federal labs just as it has in academic institutions supported by federal funds.

I do not know enough about regulations that apply to federal researchers to make specific suggestions for changes.  However, I  understand that these researchers are generally not as free as their counterparts in academic labs to participate in commercialization activities, such as helping to form start-up companies or consulting with companies who license their inventions.  Removal of the regulatory barriers that prevent this sort of productive involvement in the commercialization process should be considered.

Regards, J. Scott Elmer, Esq.