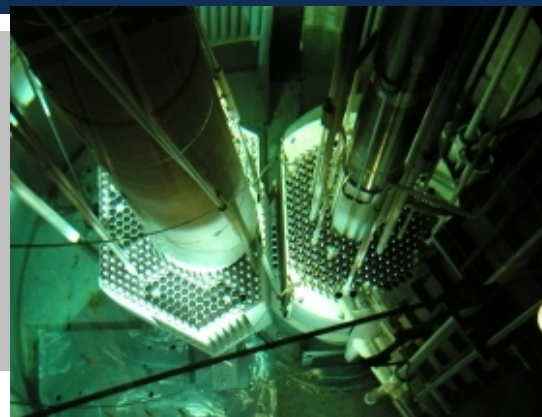


Exceptional service in the national interest

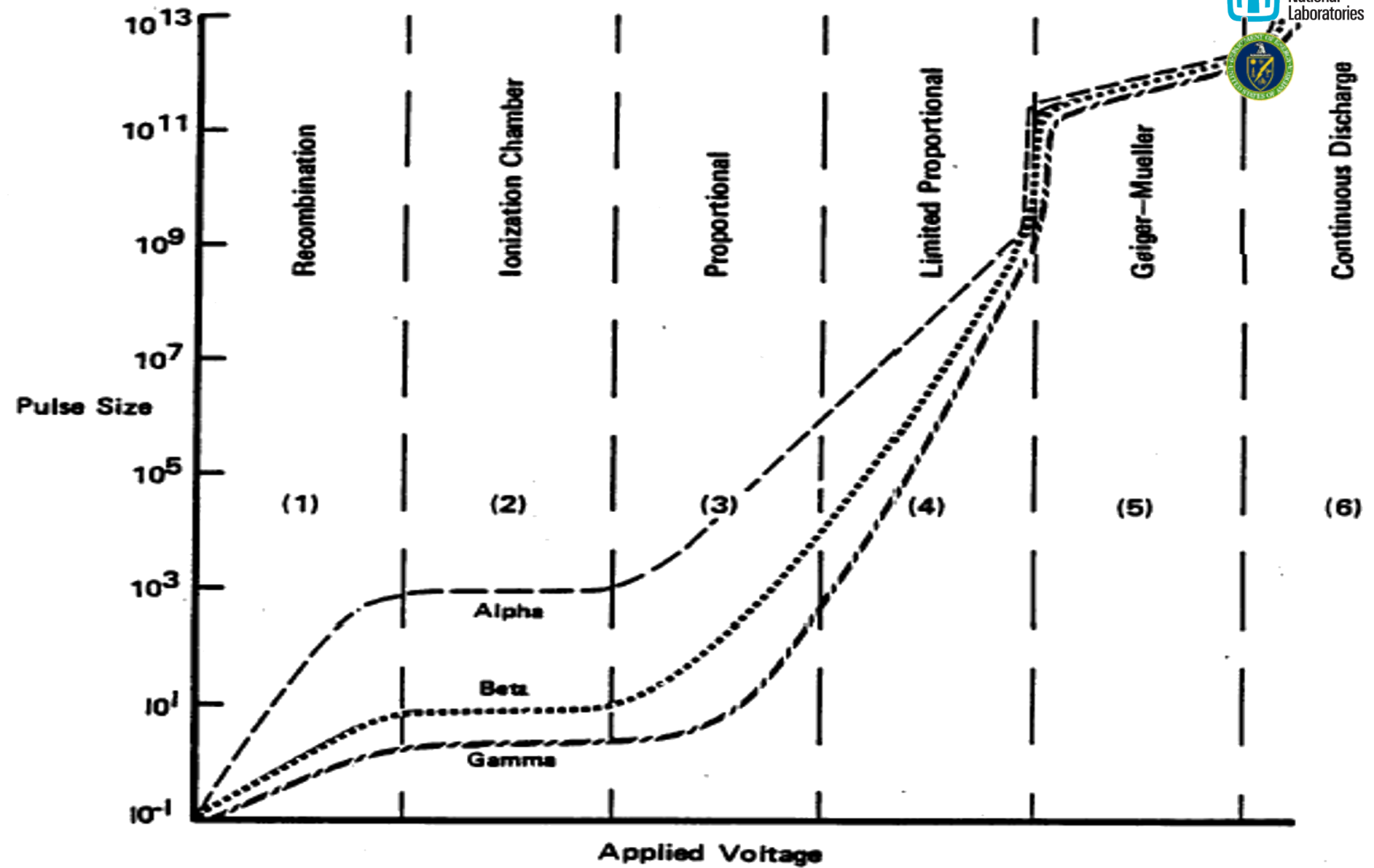


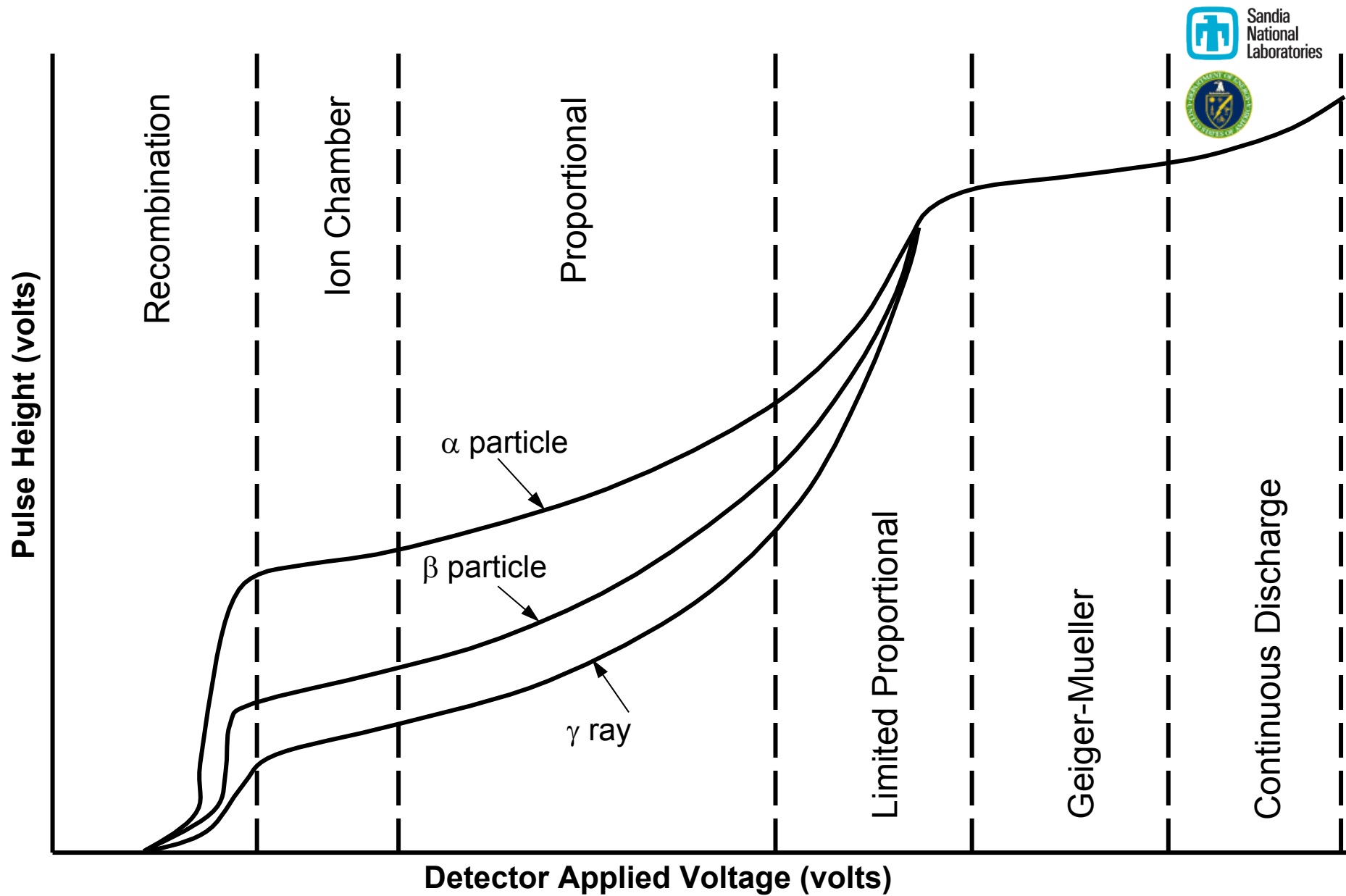
Fission Chamber High Voltage Bias

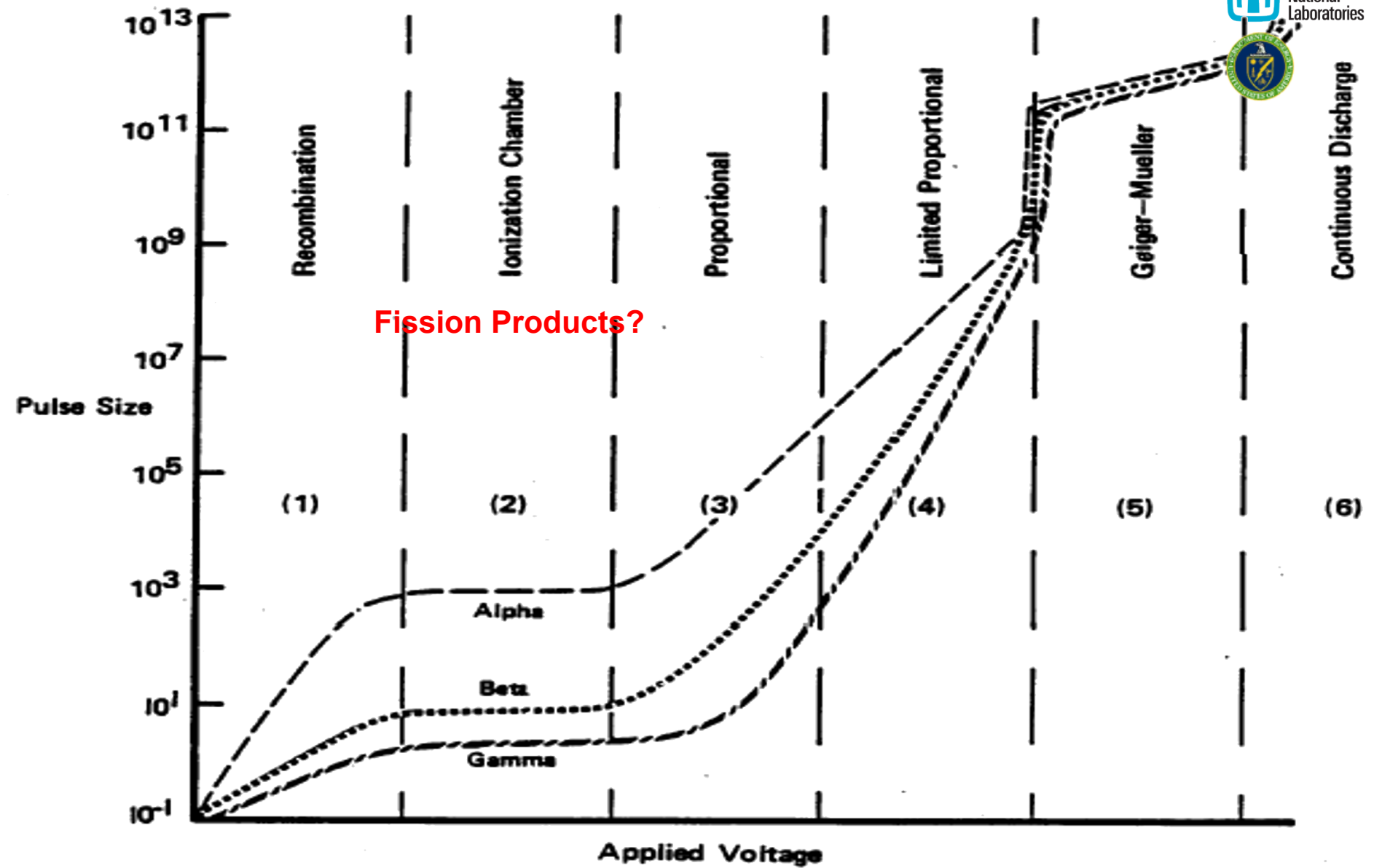
Ken Mulder
System Engineer
RAA5312962



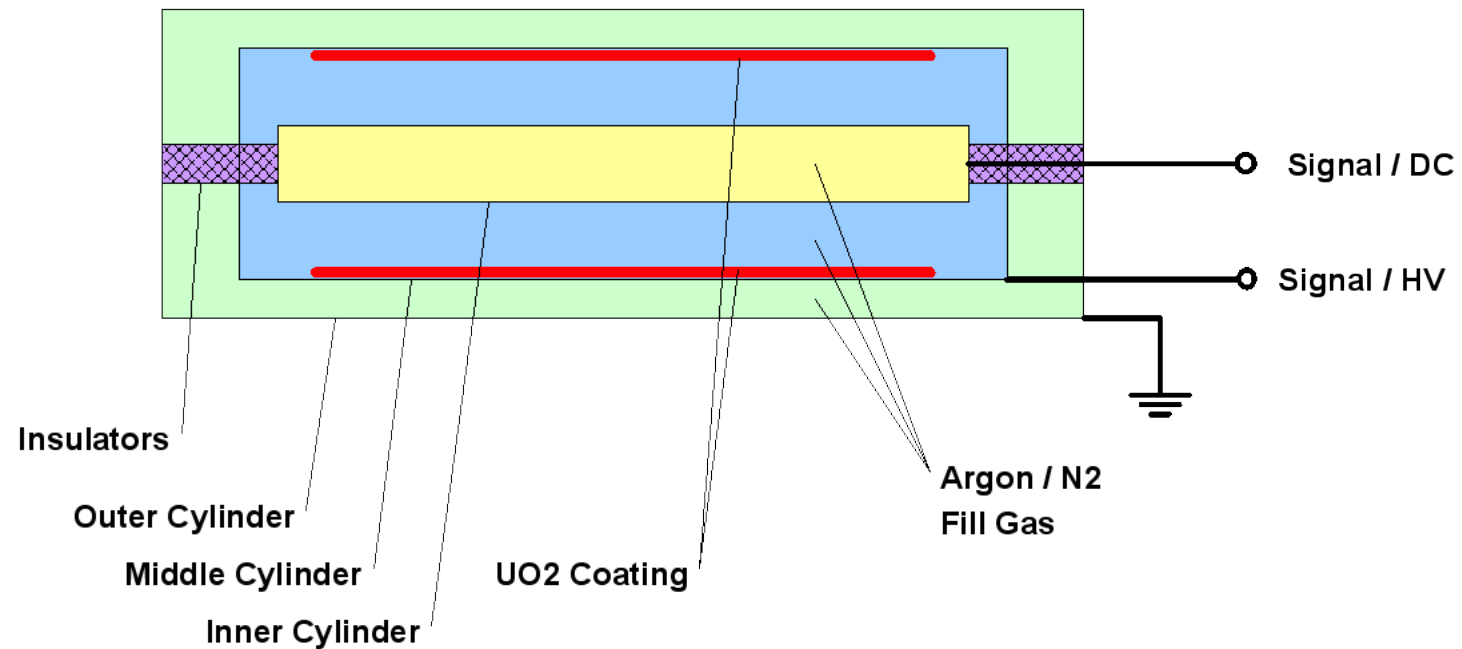
Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

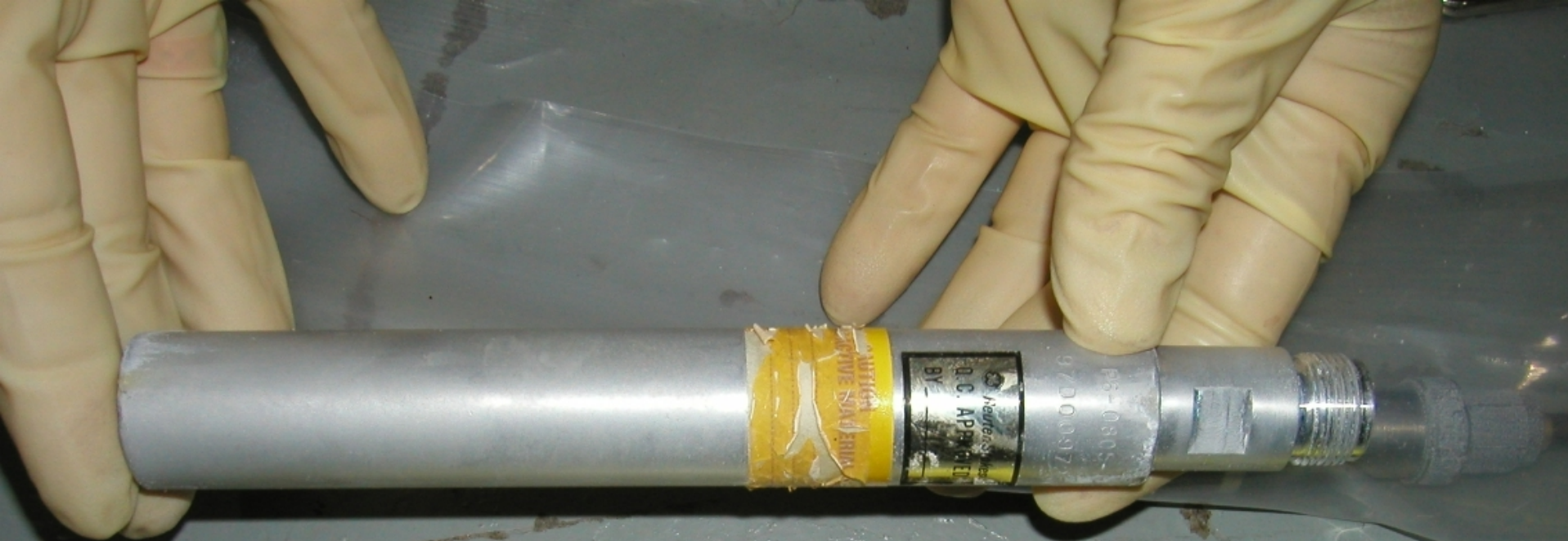




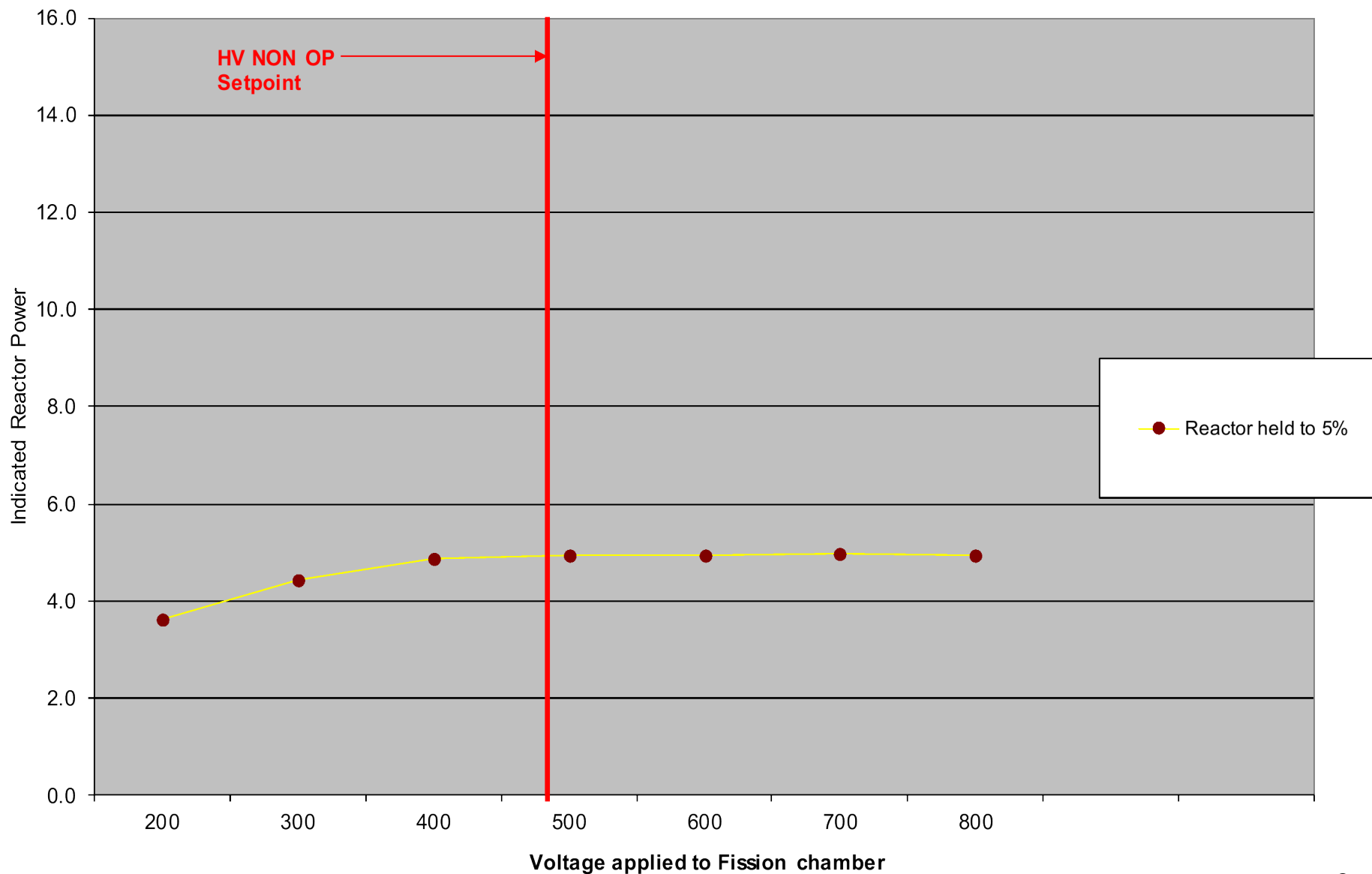


Guarded Fission Chamber

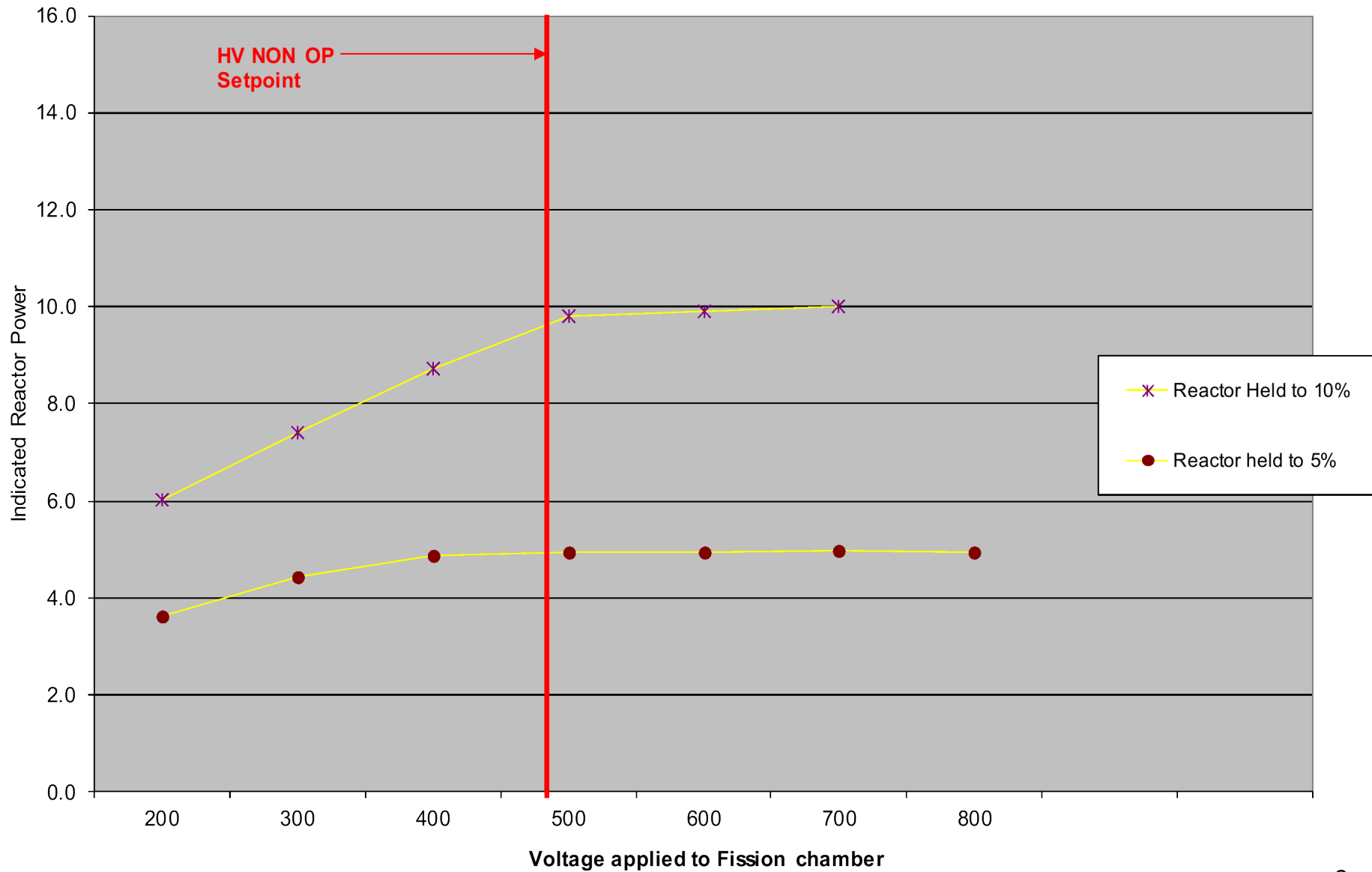




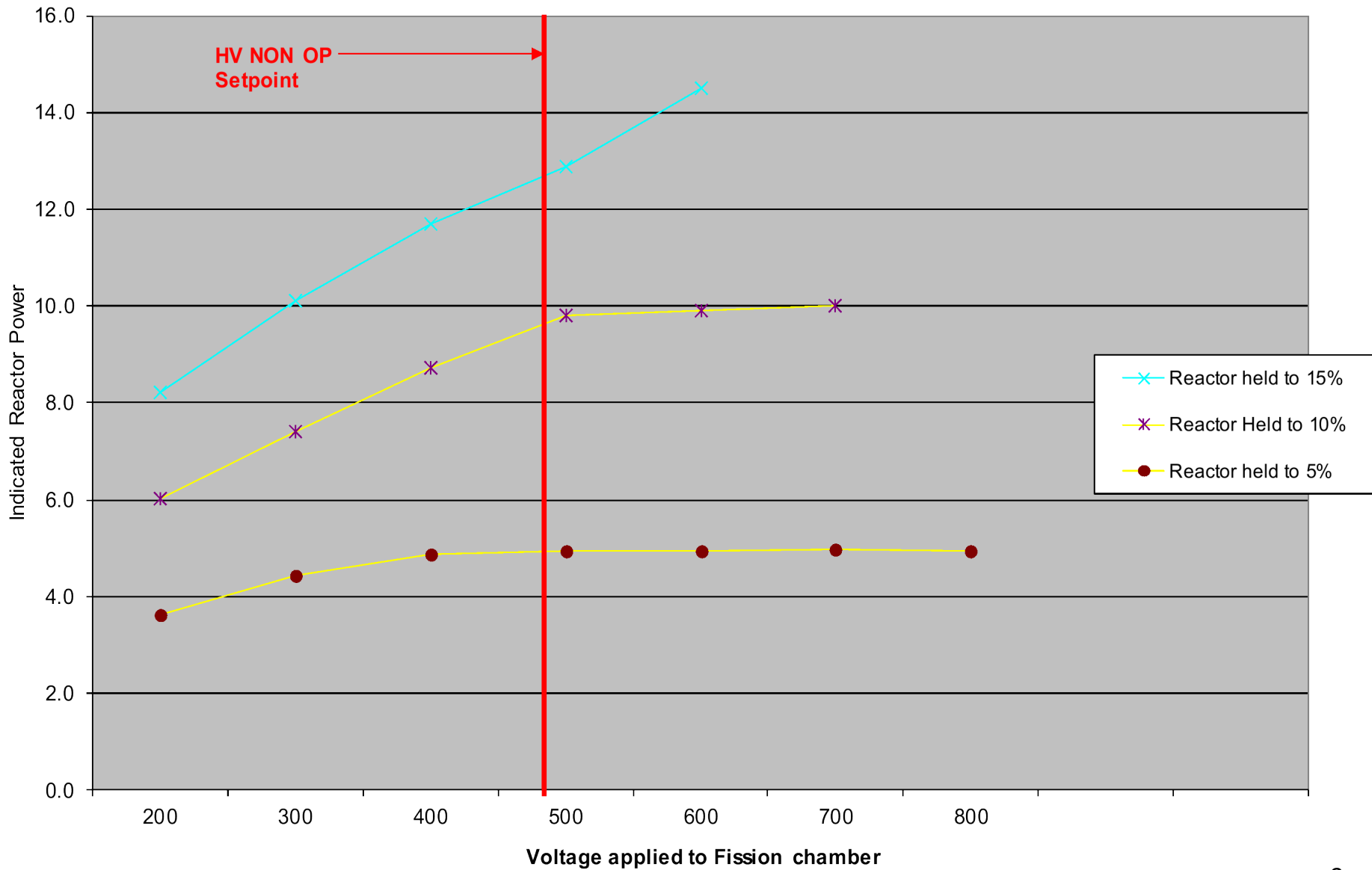
Voltage Plateau with FC at bottom

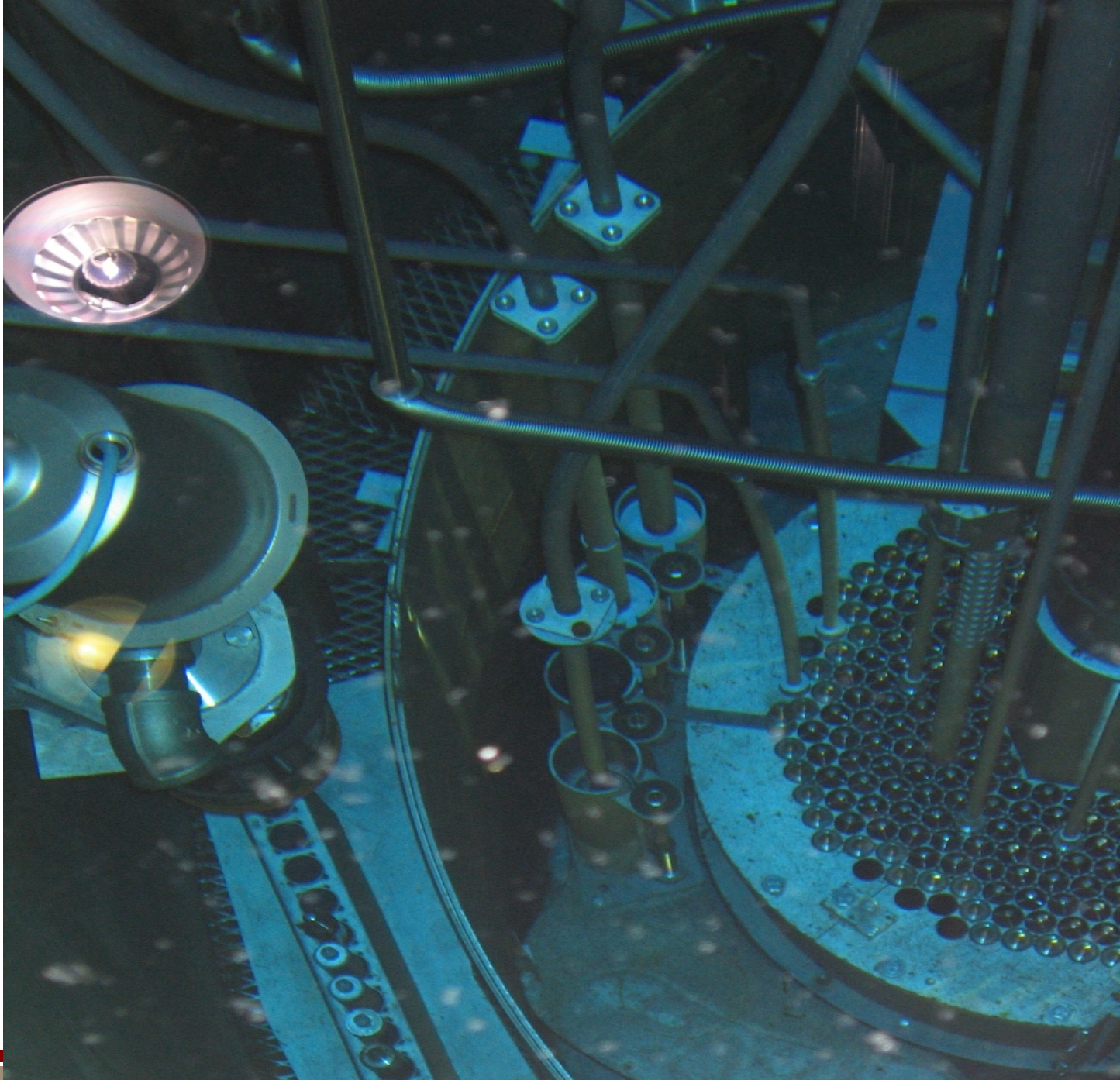


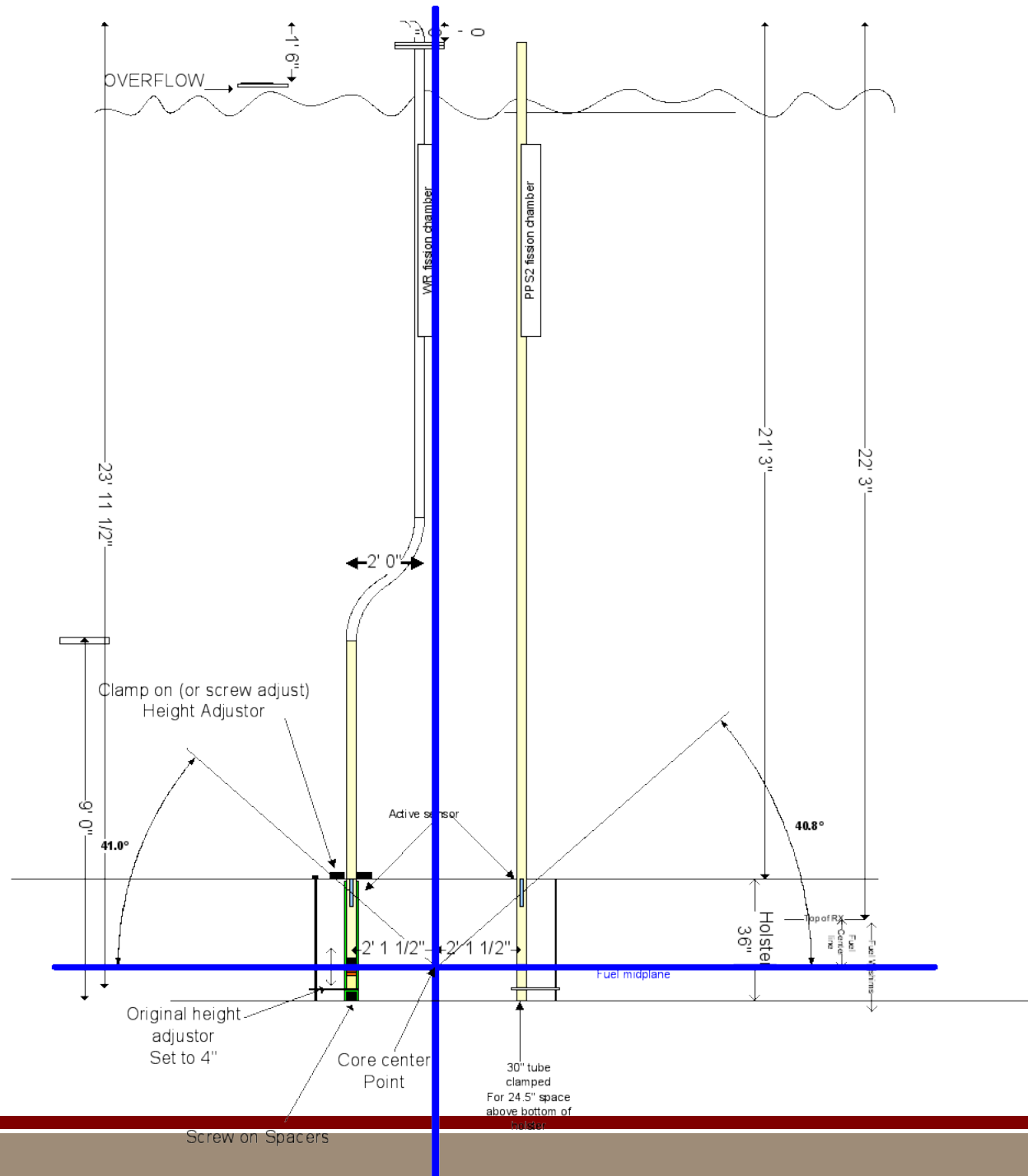
Voltage Plateau with FC at bottom



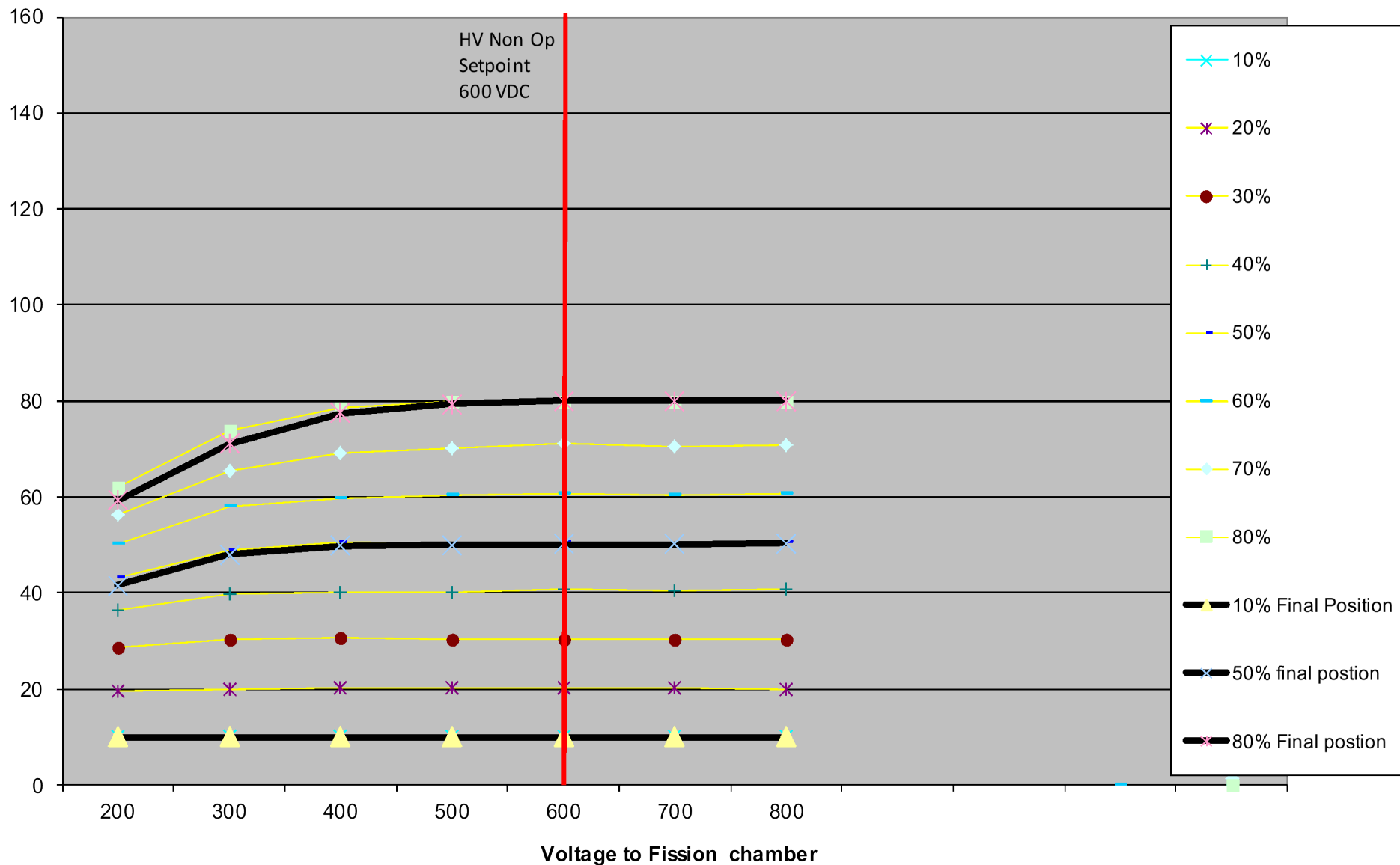
Voltage Plateau with FC at bottom







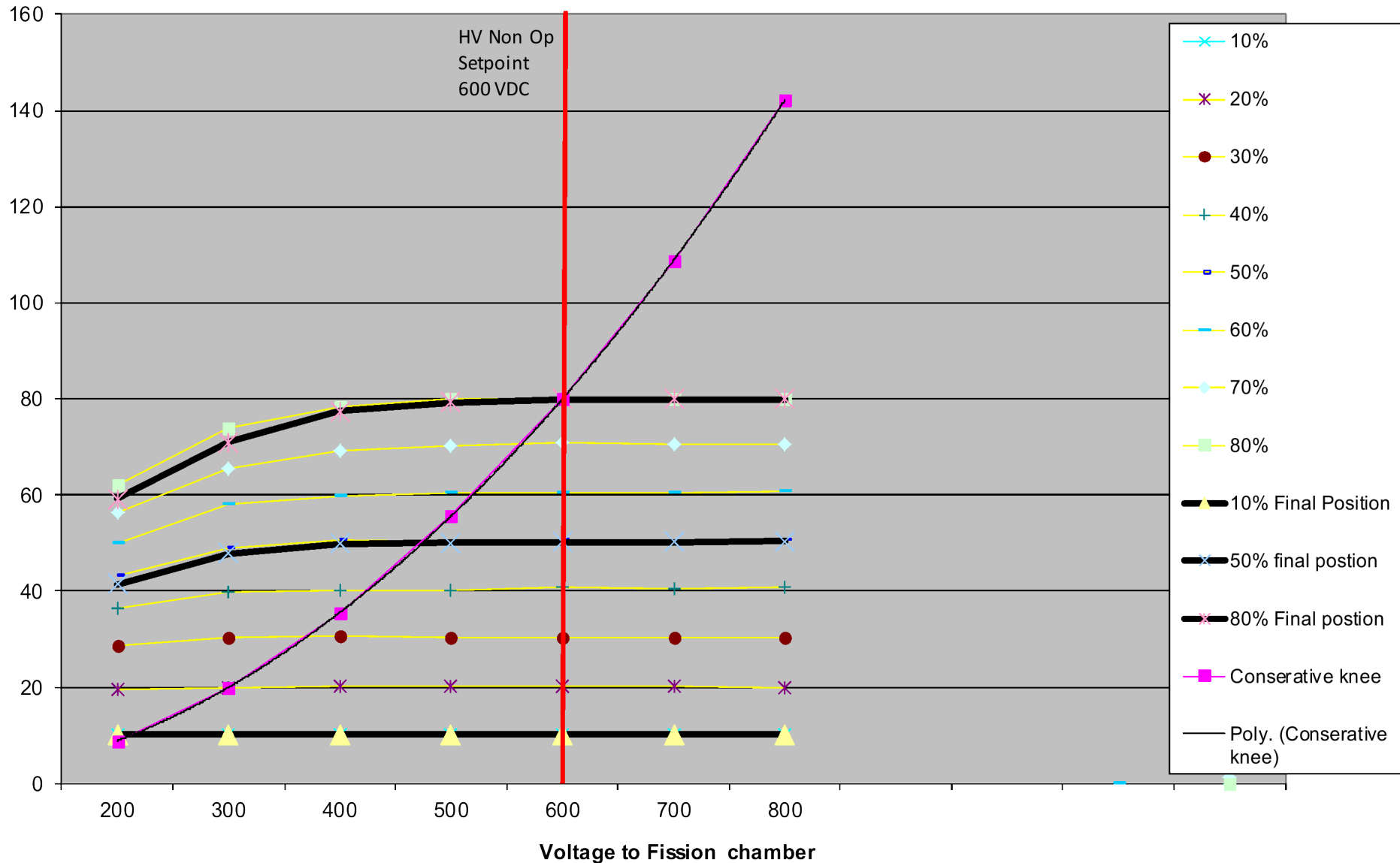
Voltage Plateau



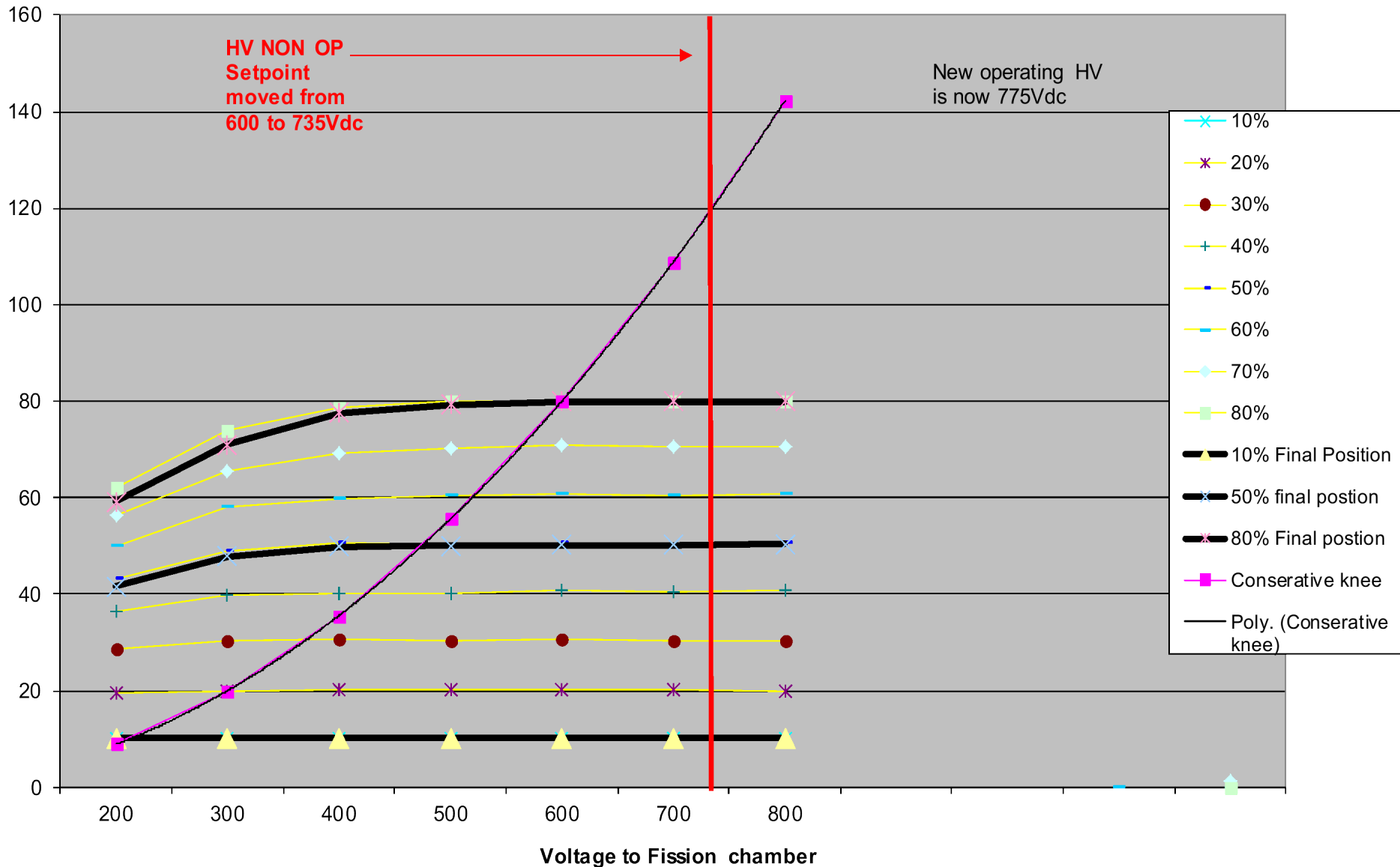
Voltage Plateau

$$y = 2.2222x^2 + 4.4444x + 2.2222$$

$$P2 = ((Vp2 * \sqrt{P1}) / (Vp1))^2$$



Voltage Plateau



Summary

- A Fission Chamber's interaction with a neutron provides a noticeably, flat and long plateau. Alpha, Beta and Gamma interactions have a more noticeable slope and shorter ion chamber region.
- Gas amplification curves may be equipment specific.
- Nuclear environments (higher power) can affect gas amplification performance.
- Higher power moves the curve toward less conservative power readings.
- Default HV NON OP trips are general recommendations, or rely on exact specifications that may not represent your environment.

