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Post Helium-3 Neutron Detection at BYU JOHN E. ELLSWORTH, Laboratory Nuclear Astrophysics Research Group, Brigham Young University Physics and Astronomy, J. BART CZIRR, LAWRENCE B. REES, NATHAN HOGAN, ADAM WALLACE, STEPHEN BLACK, STEVEN GARDINER, BRIAN JAMES, SURAJ BASTOLA, NIRDOSH CHAPAGAIN, ANDREW HOFFMAN, BYU Nuclear Physics Group, Brigham Young University Physics and Astronomy
— Development of spectrometers for studying low flux neutrons mixed in a field of gamma and cosmic rays has continued at BYU since 1982. As ^{3}He, the archetypal neutron detector medium, becomes scarcer, BYU and associates have been pursuing technologies that may serve as acceptable detectors, even for low energy fission neutrons. Presented will be 1) some technologies: typical ^{3}He safeguard monitoring equipment, capture gating techniques, multi-pulse discrimination, and hybrid developments; 2) some tools: low room-return lab, LANL LANSCE time of flight, and fission spectroscopy; 3) and some lessons learned: PMT timing disparity, plastic non- linearity, and pulse fragmentation.

John E. Ellsworth
Brigham Young University Physics and Astronomy

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