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Submitted via e-mail: Y12sweis.comments@tetratech.com

Re: POGO's Comments on the Site-Wide Environmental Impact Statement for the Y-12 National Security Complex

To Whom It May Concern:

The Project On Government Oversight (POGO) is an independent nonprofit that investigates and exposes corruption and other misconduct in order to achieve a more effective, accountable, open, and ethical federal government. POGO believes that this Y-12 Site-Wide Environmental Impact Statement (SWEIS) process is flawed and a bit presumptuous, because the National Nuclear Security Administration's (NNSA) decision to take action on the Uranium Processing Facility (UPF) comes before the 2010 Nuclear Posture Review is complete. That said, POGO did review the alternatives outlined in the Draft Y-12 SWEIS and found that they do not reflect the reality of the Administration's vision and plan for nuclear weapons. POGO is opposed to the five alternatives, and is proposing a sixth alternative, which will not only save taxpayers' money but will also improve the security of nuclear materials.

POGO's alternative requires that the NNSA design an aggressive plan for downblending the approximately 300 Metric Tons (MT) of highly enriched uranium (HEU) stored at Y-12. Currently, DOE is planning to store this HEU inventory at the newly constructed Highly Enriched Uranium Materials Facility (HEUMF). However, the material could instead be declared excess because it's not needed for naval reactor fuel—the Navy could have priority on HEU from dismantled canned subassemblies from the stream of weapons in the dismantlement queue to fuel its nuclear powered submarine fleet.

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Declaring Y-12's 300 MT of HEU as excess and downblending it has several benefits: it would eliminate the perceived need to construct the multi-billion dollar UPF; it would reduce the cost of storing un-needed weapons-grade material while simultaneously creating the revenue-generating low enriched uranium (LEU); and it would significantly reduce the security risk inherent in storing HEU.

Regarding the UPF, NNSA failed to build a strong case for the need for the facility in either the *Complex Transformation* and the UPF SWEIS. NNSA states the purpose for the proposed UPF as R&D and producing HEU secondaries for weapons. However, the specifics of what R&D entails is not clear, and since there are thousands of secondaries in storage, there is no established need to manufacture new ones. A recent report by the respected JASON group regarding the Lifetime Extension Program (LEP) states that "today's nuclear warheads could be extended for decades, with no anticipated loss in confidence," which also confirms that there is no need to manufacture additional secondaries.

But even if the UPF were needed for those functions, downblending Y-12's HEU would free up enough space at HEUMF to accommodate the limited R&D and manufacturing functions currently planned for the UPF. Combining functions into one facility is not unprecedented. For example, the PF-4 facility at Los Alamos National Lab does R&D and manufacturing, and stores tons of weapons-grade plutonium. Moving the functions planned for the UPF into HEUMF would eliminate the need to build the UPF, thus saving an estimated $3.5 billion in new construction costs, plus operations and security costs for a new facility. In addition, UPF will likely have soaring construction costs and overruns, as did the HEUMF, for which costs ballooned from $97 million to $549 million. The National Ignition Facility (NIF) project also experienced dramatically increased costs and delayed completion dates. The Department of Energy sold the NIF to Congress in the early 1990s with a reported cost estimate of $700 million and an original completion date of 2002, yet its most recent cost estimate is $5-6 billion with a completion date of 2010—more than 600 percent over budget and at least 8 years behind schedule. Thus, investment in UPF is not a wise decision and that those funds should be spent to facilitate downblending.

POGO's alternative not only saves money by eliminating construction costs, it will generate revenue by creating LEU. If Y-12's HEU was downblended into LEU, it would be worth an estimated $72 million per MT, totaling in excess of $18 billion.[1] Globally, LEU is increasingly in demand as fuel for nuclear power reactors, which provides 19 percent of U.S. electricity.

Perhaps most importantly, POGO's alternative provides the most security, as opposed to NNSA's plan to indefinitely store the dangerous and valuable HEU. Unlike HEU, LEU is not weapons-usable, and therefore does not pose serious security risks or require expensive security systems to guard it. The primary goal of nuclear terrorists is to get their hands on HEU. Using

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[1] The $18 billion amount is determined by the formula that each MT of HEU would be worth over $72 million, as stated in: "Expanded and Accelerated HEU Downblending: Designing Options to Serve the Interests of all Parties," written by Harvard University's Matthew Bunn for the Institute of Nuclear Materials Management 49th Annual Meeting. http://www.nti.org/c_press/Bunn%20INMM%20July%202008%20logo.pdf. The price of LEU fluctuates with the market ranging from $7/lb. to $55/lb. http://www.moneyweb.co.za/mw/view/mw/en/page66?oid=241290&sn=Detail. These revenues would be combined with the savings of storing and securing HEU minus the costs associated with the process to determine the net value.

only approximately 100 pounds of HEU, terrorists could create an improvised nuclear device that has the potential for a blast as large as 10-kilotons—one that has the same yield as the nuclear bomb used on Hiroshima.[2] As Nobel Prize-winning physicist Luis Alvarez explained:

> With modern weapons-grade uranium, the background neutron rate is so low that terrorists, if they had such material, would have a good chance of setting off a high-yield explosion simply by dropping one half of the material onto the other half. Most people seem unaware that if separated U-235 [highly enriched uranium] is at hand, it's a trivial job to set off a nuclear explosion. ... Given a supply of U-235 ... even a high school kid could make a bomb in short order.[3]

Terrorists have less interest in LEU because reactor-grade LEU contains less than 20 percent U-235 and cannot sustain an explosive nuclear chain reaction.[4]

We appreciate the opportunity to submit these comments.

Sincerely,

Peter Stockton
Senior Investigator

Ingrid Drake
Investigator

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[2] An Improvised Nuclear Device (IND) explosion is qualitatively different from a "dirty bomb," also known as a dispersal device: detonating plutonium or highly enriched uranium with an explosive would cause a major dispersion of highly radioactive materials. The explosion from the nuclear bomb dropped on Hiroshima was created using a "gun type" method (firing a piece of highly enriched uranium at another piece to create a chain reaction). Using the same theory, terrorists could create a crude IND by taking two pieces of HEU and slamming them together with conventional explosives, or by simply dropping one plate of HEU from a certain height onto another. See: Bunn, Matthew and John P. Holdren. "A Tutorial on Nuclear Weapons and Nuclear-Explosive Materials: Nuclear Weapons Design and Materials." *Securing the Bomb 2006*. Managing the Atom Project, Harvard University. September 6, 2006. http://www.nti.org/e_research/cnwm/overview/technical2.asp. This nearly happened accidentally at Y-12 several years ago. (The HEU was not dropped from a significant height, and the scientist was able to kick away the piece that was dropped before a reaction could take place.) According to Princeton University physicist Frank von Hippel, "a 100-pound mass of uranium dropped on a second 100-pound mass, from a height of about 6 feet, could produce a blast of 5 to10 kilotons." Wald, Matthew L. "Suicidal Nuclear Threat Is Seen at Weapon's Plants." *The New York Times,* January 23, 2002. By comparison, the blast from the Hiroshima bomb was 13 kilotons. It killed over 200,000 people. *WMD 411*. Center for Nonproliferation Studies at the Monterey Institute of International Studies, 2004. http://www.nti.org/f_wmd411/f1a4_1.html; and "The Destructive Power of Nuclear Weapons: Hiroshima and Nagasaki." Nuclear Terrorism Tutorial: Center for Nonproliferation Studies at the Monterey Institute of International Studies, 2005. Chapter 2. http://www.nti.org/h_learnmore/nuctutorial/chapter02_08.html.

[3] Alvarez, Luis W. *Alvarez: Adventures of a Physicist*. Basic Books: New York, 1987. p 125.

[4] POGO was one of the first groups to raise awareness about this possibility with the publication of its investigative report *U.S. Nuclear Weapons Complex: Security At Risk*, October 1, 2001. http://www.pogo.org/pogo-files/reports/nuclear-security-safety/security-at-risk/.