

Cost of Not Recycling May Be ‘Staggering’

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Spurgeon graduated with distinction from the U.S. Naval Academy, and holds a Masters of Science in nuclear engineering and the degree of Nuclear Engineer from the Massachusetts Institute of Technology. In addition to government posts in the Ford Administration, he has worked in the nuclear industry.

Spurgeon was interviewed Nov. 13, via e-mail, by Marjorie Mazel Hecht, for 21st Century Science & Technology magazine.

Q: The National Academy of Sciences committee [see accompanying article] is headed by the same man—Robert Fri—who was responsible in the Ford Administration for the policy that stopped reprocessing in 1975. This present committee was unanimously opposed to going forward with reprocessing, saying that it wasn't needed now, and it cost too much. But what about the cost of not reprocessing? Not to reprocess means that the anti-nukes have a perpetual political rallying point: nuclear "waste."

Spurgeon: The cost of not reprocessing may be staggering. Since only about 5% of the uranium in nuclear fuel is consumed, we are currently disposing of a tremendous amount of a remaining energy. And, perhaps worse, by not developing and utilizing recycling technology, the United States will not be able to compete in this market segment against other countries such as France or Japan, that have made the national commitment to recycle their spent nuclear fuel. Moreover, closing the nuclear fuel cycle in the United States is essential to ensuring a vibrant nuclear industry in the future.

Additionally, the United States needs to develop its recycling capability in order to provide the full scope of assured fuel supply services to countries interested in obtaining nuclear power plants to meet their domestic energy needs, thereby reducing the risk of proliferation of sensitive technologies that could be misused.

Q: Some of the GNEP goals—fuel testing and experience with a sodium-cooled fast reactor—could be achieved using a restarted Fast Fuel Test Facility.¹ Is this being considered, now that a study has shown restart to be possible?

Spurgeon: The Department has not yet made a decision regarding the final technology choice or location for the fast reactor component of the Global Nuclear Energy Partnership (<http://www.energy.gov/news/5287.htm>). The Fast Flux Test Facility (FFTF) in the state of Washington continues to be a potential option. The ultimate decision to use FFTF or a different solution will depend upon many factors, including cost, acceptance by the state and local populations, FFTF's ranking against other technologies, operating and maintenance costs, amongst other considerations.

1. The FFTF, a sodium-cooled fast flux reactor, was shut down by the DOE in 2005, allegedly for budgetary reasons, although the reactor operated well and was in good working order. FFTF supporters campaigned to keep it open as a facility that could test reactor fuel and produce isotopes for medical and industrial use. After the final DOE decision to shut it down, engineers drained the sodium by drilling a hole in a plate inside the reactor vessel, which, it was thought, would prevent the reactor from being started up again.

However, after the hole was drilled, engineers looked at the hole, reassessed the situation, and determined that the FFTF could, indeed, be started again.

For more background on the FFTF, see "Save the Fast Flux Test Reactor," *EIR*, Feb. 25, 2005.

Q: Why is there so little mention of new technologies for isotope separation? E.g., if we develop the fusion torch, we could transmute spent fuel and make use of valuable isotopes for medical and industrial purposes.

Spurgeon: While many technologies have been evaluated for use as part of the GNEP concept, those that are extremely nascent have not been included. The fusion torch, while potentially applicable, has a very low technology readiness level, and is decades away from commercial manifestation, and wouldn't meet the Department's near-term objective to begin spent nuclear fuel recycling.

Q: What will be the effect of the NAS report on the program and on the funding? What's next at NE [DOE Office of Nuclear Energy], after this report?

Spurgeon: The Department agrees with some of the report's recommendations, namely that the Nuclear Power 2010 program should be fully funded. However, we believe that there are significant discrepancies between the report's conclusions and their applicability to the current GNEP program. The Department is hopeful that Congress will read the report and consider its recommendations in context with information provided by DOE and other sources.

Q: The NAS report is a policy disaster. We need a return to the American System of industrial development—which looks 25-50 years into the future to plan needed infrastructure, instead of an inch-by-inch, bottom-line approach (like that of the NAS committee) that gets you nowhere. This country was built into an industrial giant by a dirigist approach, carrying out great infrastructure projects. What would you (NE) do, if you could define your mission as reindustrializing the U.S.A. and going nuclear to become energy independent?

Spurgeon: One of the Department of Energy's strategic goals is to promote America's energy security through reliable, clean, and affordable energy. To realize this goal, DOE is working to create a more flexible, more reliable, and higher capacity U.S. energy infrastructure. NE contributes to this effort through the Nuclear Power 2010 program and GNEP, to name a few vehicles.

Q: How do you see the United States helping to build the 6,000 new nuclear plants the world needs by 2050?

Spurgeon: Through our leadership role in GNEP, the United States is fostering the expansion of safe and secure nuclear power worldwide. Specifically, GNEP seeks to provide infrastructure support and knowledge to developing countries, including the development of smaller reactors more appropriate for the infrastructure of developing countries. Additionally, a robust expansion of nuclear power is predicated on a viable answer to waste disposition. Developing a sound and viable waste disposition strategy is a fundamental goal of GNEP.