

## Why Can't the NNSA Manage Its Programs?

Written by Nick Sanders

Thursday, 02 December 2010 00:00

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*(Note: One in a continuing series exploring Federal government program management challenges. Other articles in this series all have titles that start with "Why Can't .....")*



The National Nuclear Security Administration ( [NNSA](#) ) is an interesting hybrid creature within the Executive Branch bureaucracy of the Federal government. Established by an Act of Congress in 2000, the NNSA is a separately organized agency within the Department of Energy. Its mission:

*NNSA is responsible for the management and security of the nation's nuclear weapons, nuclear nonproliferation, and naval reactor programs. It also responds to nuclear and radiological emergencies in the United States and abroad. Additionally, NNSA federal agents provide safe and secure transportation of nuclear weapons and components and special nuclear materials along with other missions supporting the national security.*

Its annual budget of roughly \$10 billion is largely devoted to nuclear "Weapons Activities". Under that umbrella are tasks such as; Nuclear Weapon Stockpile Support; Science, Technology & Engineering; and Infrastructure. In addition, NNSA performs Nuclear Nonproliferation activities and supports Naval nuclear reactor programs for the Department of Defense.

So why can't NNSA manage its programs?

A recent [GAO report](#) discussed the status of NNSA's Uranium Processing Facility (UPF), designed to replace the aging, World War II-era Y-12 plant, located in Oakridge, Tennessee. GAO reported that—

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NNSA plans to transfer much of the ongoing uranium processing work and uranium component production that is performed at existing facilities at the Y-12 plant to the UPF in order to continue to support the nation's nuclear weapons stockpile and provide uranium fuel to the U. S. Navy, among other things. The proposed UPF is to consist of a single, consolidated uranium processing and component production facility to encompass less than half the size of the existing Y-12 plant facilities. NNSA officials expect that a combination of modern processing equipment and consolidated operations at the UPF will significantly reduce both the size and cost of enriched uranium processing at the Y-12 plant.

In the Background section of its report, GAO discussed some of the challenges that DOE and NNSA historically have faced in managing complex programs. GAO reported that—

For years, DOE and NNSA have had difficulty managing their contractor-run projects. Despite repeated recommendations from us and others to improve project management, DOE and NNSA continue to struggle to keep their projects within their cost, scope, and schedule estimates. Because of DOE's history of inadequate management and oversight of its contractors, we have included contract and project management in NNSA and DOE's Office of Environmental Management on our list of government programs at high risk for fraud, waste, abuse, and mismanagement since 1990.



In response to its continued presence on our high-risk list, DOE analyzed the root causes of its contract and project management problems in 2007 and identified several major findings. Specifically, DOE found that the department:

- often does not complete front-end planning to an appropriate level before establishing project

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performance baselines;

- does not objectively identify, assess, communicate, and manage risks through all phases of project planning and execution;
- fails to request and obtain full project funding;
- does not ensure that its project management requirements are consistently followed; and
- often awards contracts for projects prior to the development of an adequate independent government cost estimate.

In looking at DOE's "root cause" analysis, one sees many of the standard problems associated with challenging public works projects. From DOE's analysis, it appears that project execution is not the problem, the problem is management. Fundamentally, DOE fails to properly scope its work and to develop associated budgets that are reasonable in light of the work to be performed; moreover, because it hasn't accurately scoped and budgeted the work, funding problems impact performance.

Although DOE apparently identified its failings, it failed to do much about them. NNSA's UPF project suffered from the mismanagement issues noted above. GAO reports that the current UFP construction cost estimates "are already more than double its initial estimate." And, although the latest project schedule (established in 2007) projected project completion "between 2018 and 2022," GAO reports that "NNSA officials expect the UPF will not be completed before 2020 due to funding shortfalls."

First of all, let's ask what genius approved a schedule with a four-year float? Next, what about project plans that don't receive full funding because of unanticipated cost growth (of more than 100%)?

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And that's not even mentioning the risks and potential problems associated with the ten "advanced uranium processing and nuclear weapons component production facilities" planned for the UPF, which include items such as "microwave casting" and "agile machining". These new technologies are insufficiently mature--in terms of Technological Readiness Levels (TRLs)—and thus represent huge risks to the project.

GAO opined that—

Because all of the technologies being developed for the UPF will not achieve optimal levels of readiness prior to project critical decisions, NNSA may lack assurance that all technologies will work as intended. This could force the project to revert to existing or alternate technologies, which could result in design changes, higher costs, and schedule delays. In addition, other problems have occurred. For example, NNSA recently downgraded special casting technology from TRL 4 to TRL 3 because, according to UPF officials, unexpected technical issues occurred that required additional research and testing to resolve. Although officials expect this technology to be at TRL 6 by the time a formal cost and schedule baseline is approved in July 2012, it is not expected to reach TRL 7 before construction begins in December 2013.

In other words, not only has DOE doubled its initial cost estimates and is likely to miss its initial completion schedule, there are additional risks that have not yet been factored into the analysis—and those risks could impact the UPF project in the coming years.

In sum, the DOE asserts that it has identified and understands its program management shortcomings. However, NNSA's UPF project is evidence that it has failed to meaningfully address and correct them. In the current environment of increased sensitivity to federal spending, we hope DOE and NNSA implement better program management practices soon.