

# GAO Highlights

Highlights of [GAO-15-525](#), a report to congressional committees

## Why GAO Did This Study

An isotope of lithium is a key component of nuclear weapons and is essential for their refurbishment. NNSA halted certain aspects of its lithium production operation—conducted at its Y-12 site—in May 2013 due to the condition of the site’s 72-year old lithium production facility. Y-12 management concluded that usable lithium could run out without additional actions. In response, NNSA developed a strategy that proposed a new lithium production facility by 2025 and identified “bridging” actions needed to meet demand through 2025. In January 2015, NNSA submitted for approval a mission need statement for lithium production capabilities.

Senate Report 113-176 included a provision for GAO to review lithium production at NNSA’s Y-12 site. This report (1) describes the challenges NNSA has identified with its lithium production strategy, and (2) determines the extent to which NNSA developed a mission need statement that is independent of a particular solution, as called for in DOE’s directive on project management.

To do this work, GAO reviewed relevant agency directives, guidance, and other documents and interviewed agency officials.

## What GAO Recommends

GAO recommends that NNSA objectively consider all alternatives, without preference for a particular solution, as it proceeds with its analysis of alternatives process. NNSA neither agreed nor disagreed with GAO’s recommendation; however, it disagreed with the conclusions. GAO continues to believe its conclusions are fair and well supported.

View [GAO-15-525](#). For more information, contact David C. Trimble at (202) 512-3841 or [trimbled@gao.gov](mailto:trimbled@gao.gov).

July 2015

## DOE PROJECT MANAGEMENT

### NNSA Should Ensure Equal Consideration of Alternatives for Lithium Production

## What GAO Found

The National Nuclear Security Administration’s (NNSA) has identified various challenges in its lithium production strategy that may impact its ability to meet demand for lithium in the future, as well as actions that may mitigate these challenges. These challenges pertain to three key areas. First, NNSA may not have a sufficient supply of lithium material for defense program requirements. NNSA officials told GAO in April 2015 that, due to additional recent increases in demand, its supply of currently qualified lithium—lithium approved for use in weapon systems in refurbishment—will run out by 2018 without additional actions. Second, at NNSA’s Y-12 National Security Complex in Oak Ridge, Tennessee, where lithium production operations are conducted, the existing lithium production facility and equipment are at risk of catastrophic failure. In March 2014, for example, a 300-pound slab of concrete fell from the ceiling into an active work area (this area is no longer in use). Third, fiscal constraints could cause delays in the construction of a new lithium production facility. NNSA, in its lithium production strategy, also identifies various actions that it could take to mitigate these challenges—including procuring lithium from outside sources and outsourcing certain aspects of the lithium production process. However, the mitigating actions are in early stages of development, and may bring additional challenges.

In developing and implementing its lithium production strategy, NNSA did not develop a mission need statement that is fully independent of a particular solution, contrary to the agency directive on Program and Project Management for the Acquisition of Capital Assets, which governs the design and construction of new facilities (DOE Order 413.3B). According to this directive, the mission need statement should be independent of a particular solution, and it should not be defined by the equipment, facility, technological solution, or physical end-item. This allows the program office responsible for the capital asset project to explore a variety of alternatives. In January 2015, NNSA program officials submitted a mission need statement for lithium production for approval to the Deputy Administrator for Defense Programs, NNSA. It was approved on June 10, 2015. The mission need statement included, among other things, a description of the capability gap, alternatives for addressing its mission need—such as building a new facility, leasing off-site facilities, or outsourcing lithium processing—and estimated cost and schedule ranges. However, the document expresses the capability gap in terms of a particular solution—specifically, a new facility. For example, it includes multiple references to an alternative facility to replace the existing facility, suggesting that NNSA gave preference to building a new facility. In addition, it did not include cost and schedule estimates for six of the seven alternatives presented in the mission need document. The mission need statement includes cost and schedule estimates only for the alternative of building a functioning facility at Y-12. NNSA officials told GAO that they plan to analyze other alternatives for meeting the mission need for lithium production. However, by seemingly giving preference to a particular solution in its mission need document, NNSA is not following DOE’s project management order, which may preclude serious consideration of other potential viable alternatives. A mission need statement biased toward a particular solution may introduce bias into the rest of the analysis of alternatives process.