

MEMORANDUM

June 26, 2013

To: Members of the Subcommittee on Financial and Contracting Oversight
Fr: Subcommittee on Financial and Contracting Oversight Majority Staff
Re: Hearing on Contract Management by the Department of Energy

On Thursday, June 27, 2013, at 10:30 a.m., the Subcommittee on Financial and Contracting Oversight will hold a hearing entitled, “Contract Management by the Department of Energy.” The purpose of the hearing is to examine the Department of Energy’s long history of poor oversight of its environmental remediation contracts. This mismanagement has led to billions of dollars in cost overruns and has delayed the completion of site cleanup by decades.

In preparation for the hearing, this memorandum provides background information on the facilities managed by the Department of Energy’s Office of Environmental Management (EM) and the contractors that perform remediation contracts. The memorandum highlights the ongoing work of oversight agencies that have jurisdiction over the Department of Energy and their outstanding recommendations for the improvement of contract management.

As part of its preparation for the hearing, the Subcommittee obtained contract information from the Department of Energy and several contractors, including The Babcock & Wilcox Company (B&W), Bechtel Group Inc. (Bechtel), CH2M Hill Companies, Ltd. (CH2M Hill), Energy Solutions, Inc., Fluor Corporation (Fluor), Parsons Corporation (Parsons) and URS Corporation (URS). The Subcommittee also requested audit reports from the Defense Contract Audit Agency.

I. BACKGROUND

The Department of Energy is the largest civilian contracting agency in the federal government. The Department spends approximately 90% of its budget through contracts.¹

The Department spends approximately 20% of its budget² through the Office of Environmental Management, which is responsible for the cleanup of nuclear waste generated by World War II and Cold War-era nuclear enrichment programs.³ Currently, the Department is

¹ Government Accountability Office, *High Risk Series: An Update* (Feb. 2013) (GAO-13-283).

² Department of Energy, Office of Environmental Management, *FY 2014 Environmental Management Budget Request to Congress* (Apr. 2013) (DOE/CF-0088).

³ Department of Energy, Office of Environmental Management, *Mission* (online at www.energy.gov/em/mission) (accessed June 26, 2013).

responsible for cleanup at 17 sites in 11 states. The Department's future cleanup liability is estimated to reach nearly \$270 billion and cleanup is expected to continue beyond 2087.⁴

II. CONTRACT MANAGEMENT AT EM

Contract mismanagement by EM is recurring and pervasive, and extends to nearly every aspect of the contracting process. The Department of Energy's contract management has been on GAO's "high risk" list since 1990, the year that the list began.⁵

A. Lack of Real Competition

EM has failed to adequately compete its high value contracts. The lack of competition is exacerbated by the length of contracts awarded and the fact that contracts are awarded to the same contractors.

EM is moving away from the Cold War-era maintenance and operations contracts that saw some contractors holding on to contracts for 20 years or more. However, EM still relies on lengthy contracts for both decommissioning and construction projects. For example, CH2M Hill was awarded a contract for cleaning up EM's Idaho site in 2005. While the contract was supposed to expire in 2012, EM extended it without competition until 2015.⁶

Most environmental remediation is concentrated among a few large contractors, who frequently form joint ventures with each other. These contractors refer to themselves as "competimates", meaning that they may be competitors for one project, but joint venture teammates on another. While the Department has stated that it is fortunate to have well-qualified contractors capable of doing the technically complex tasks it demands, contractors outside this circle have complained that the Department is not open to working with new parties.

⁴ Government Accountability Office, *Observations on Project and Program Cost Estimating in NNSA and the Office of Environmental Management* (May 8, 2013) (GAO-13-510T).

⁵ Government Accountability Office, *High Risk Series: An Update* (Feb. 2013) (GAO-13-283).

⁶ See Contract No. DE-AC07-05ID14516; Department of Energy, Office of Environmental Management, *DOE Extends the Idaho Cleanup Project Contract for Three Years* (Sept. 25, 2012).

Top EM Contracts Concentrated Among Same Contractors⁷

Site & Major Project	Contract Ceiling (in billions)	Contractors
Hanford, WA; Waste Treatment Plant	\$11.2	Bechtel
Savannah River, SC; Infrastructure and Site Services	\$9.4	Fluor, Newport News Nuclear, Honeywell International
Hanford, WA; Tank Farms Waste Management and Operations	\$7.1	URS, Energy Solutions
Hanford, WA; Non-Tank Farm Waste Disposal & Facility Closures	\$5.9	CH2M Hill
Savannah River, SC; Liquid Waste Program	\$4.7	URS, Bechtel, CH2M Hill, B&W
Idaho Falls, ID; Cleanup Project	\$3.7	CH2M Hill, URS
Hanford, WA; Infrastructure and Site Services	\$3.3	Lockheed Martin, Jacobs, WSI
Oak Ridge, TN; Decontamination & Decommissioning Project	\$2.4	URS, CH2M Hill
Hanford, WA; River Corridor Cleanup	\$2.3	URS, Bechtel, CH2M Hill
Portsmouth, OH; Decontamination & Decommissioning Project	\$2.1	Fluor, B&W
Carlsbad, NM; Waste Isolation Pilot Project	\$1.3	URS, B&W
Savannah River, SC; Salt Waste Processing Facility	\$1.2	Parsons

B. Fast-Track, Design-Build Model

EM has relied extensively on “design-build” contracts, under which a single contractor is responsible for both the design and the construction of a facility.⁸ Best practices in the civilian nuclear industry call for designs to be at least 90% complete before construction of facilities begins.⁹ If construction begins before the design is sufficiently complete, projects are at high risk for cost overruns and schedule delays.

EM has failed to ensure that contract designs are sufficiently completed before beginning construction. For example, construction at the Waste Treatment Plant in Hanford, Washington,

⁷ Values as reported by the Office of Environmental Management, Department of Energy, Office of Environmental Management, *Major Contracts Summary as of 2/27/2013* (May 23, 2013).

⁸ Government Accountability Office, *Hanford Waste Treatment Plant: the Department Needs to Take Action to Resolve Technical and Management Challenges* (Dec. 19, 2012) (GAO-13-38).

⁹ *Id.*

is more than 55% complete, even though the design is only 80% complete. Partly for this reason, the budget for the Waste Treatment Plant has ballooned from \$4.3 billion to \$13.4 billion and its scheduled completion date slipped by nearly a decade.¹⁰

C. Cost Estimates

EM has failed to create adequate and realistic cost estimates.¹¹ Without a good cost estimate, there is an increased risk that costs will balloon beyond any reasonable expectation. Although EM recently decided to require independent cost estimates for contract proposals over the simplified acquisition threshold, this policy has only been in place since February 2013.¹²

In 2010, GAO reviewed two EM projects as part of its examination of the Department's cost estimating practices. It found that both project cost estimates were only "somewhat" credible and only "partially" well-documented and accurate.¹³ In May 2013, GAO found that the Department still has no standard requirements for a cost estimate. One GAO official stated, "You could just write a number on a piece of paper, and that would meet the requirement."¹⁴

Audits of contract proposals conducted by the Defense Contract Audit Agency reveal that contractors have difficulty estimating costs. Of the 35 audits of accepted proposals reviewed by the Subcommittee, more than 23 had some questioned or unresolved costs.¹⁵

D. Baselines and the Contract Change Process

At times, environmental remediation projects may encounter changed circumstances. While sometimes it may be a result of poor planning and design, it is also frequently due to unforeseen circumstances. EM works on radioactive sites that by their nature are difficult to determine the extent of contamination. In either case, to make changes to its contracts for these projects, the Department and its contractors are supposed to follow a contract change proposal and approval process. However, contractors do not always meet requirements for submitting

¹⁰ *Id.*

¹¹ Government Accountability Office, *Department of Energy: Observations on Project and Program Cost Estimating in NNSA and the Office of Environmental Management* (May 8, 2013)(GAO-13-510T).

¹² Department of Energy, *Head of Contracting Activity Directive 2.10, Independent Government Cost Estimates* (Feb. 21, 2013).

¹³ Government Accountability Office, *Department of Energy: Actions Needed to Develop High-Quality Cost Estimates for Construction and Environmental Cleanup Projects* (Jan. 14, 2010) (GAO-10-199).

¹⁴ Government Accountability Office, *Briefing for Subcommittee Staff* (May 13, 2013).

¹⁵ These audits were provided in response to a request to DCAA from the Subcommittee for all audits of EM contracts. Although DCAA indicated it had performed additional audits, these 35 were the only audits provided to the Subcommittee at the time of this report.

timely and documented contract change proposals, and the Department does not always notify the contractor of needed changes to the work scope in a timely manner.¹⁶

GAO found widely varying documentation in these reports, with some providing little to no explanatory information about what led to the change.¹⁷ Even documented changes, however, did not generally identify why the original estimate failed to anticipate the cost.¹⁸

E. Award Fees

Incentive and award fees are meant to award positive contractor performance and contracts also include provisions that are meant to penalize substandard contract performance. The Department has failed to use award fees to ensure effective project management, and in some cases has awarded fees to the contractor before the contractor either resolves technical issues or completes the required work.¹⁹ From 2002 to 2012, the Department awarded its major contractors nearly \$4 billion in award and incentive fees.²⁰

For example, from 2009 to 2012, the Department paid Bechtel, the contractor on the Hanford Waste Treatment Plant, \$24.2 million (63%) of its \$38.6 million incentive fee, based in part on Bechtel's adherence to cost and schedule targets and its resolution of technical challenges associated with waste mixing. In 2012, GAO found that the project was at "serious risk" of cost overruns and schedule delays and the Department concluded that the waste mixing technical challenges had not in fact been resolved.²¹

III. LACK OF OVERSIGHT OF SAFETY

The Department's "eyes on, hands off" approach has failed to ensure that major projects have sufficient controls over safety.²² Close relationships between the Department program office and the contractor may inhibit effective oversight. For example, the Safety Board

¹⁶ Department of Energy, Office of Inspector General, Office of Audits and Inspections: *Audit Report: The Management of the Plateau Remediation Contract* (Dec. 21, 2012) (OAS-L-13-03).

¹⁷ Government Accountability Office, *Nuclear Waste: Action Needed to Improve Accountability and Management of DOE's Major Cleanup Projects* (Sep. 26, 2008) (GAO-08-1081).

¹⁸ Government Accountability Office, *Briefing for Subcommittee Staff* (May 13, 2013).

¹⁹ Government Accountability Office, *Department of Energy: Concerns with Major Construction Projects at the Office of Environmental Management and NNSA* (Mar. 20, 2013) (GAO-13-484T).

²⁰ Award fees across all EM contracts as reported by B&W, Bechtel, CH2M Hill, Energy Solutions, Fluor, Parsons and URS.

²¹ Government Accountability Office, *Hanford Waste Treatment Plant: DOE Needs to Take Action to Resolve Technical and Management Challenges* (Dec. 19, 2012) (GAO-13-38).

²² Department of Energy, *Briefing for Subcommittee Staff* (May 21, 2013).

conducted an investigation of the safety culture at the Waste Treatment Plant at Hanford in 2011, and found it deficient. It found that both “the Department and Bechtel project management behaviors reinforce a subculture at Waste Treatment Plant that deters the timely reporting, acknowledgement, and ultimate resolution of technical safety concerns.”²³

Safety concerns also impact contract cost. Many EM projects have been delayed and experienced significant cost overruns due to the inadequate and late incorporation of safety considerations in the project requirements.²⁴ For example, the cost of Salt Waste Processing Facility at the Savannah River site has increased from an original cost-estimate of \$340 million to \$1.2 billion in part because numerous modifications were made to the design based on recommendations made by the Safety Board.²⁵

IV. CASE STUDY: WASTE TREATMENT PLANT (HANFORD, WA)

The Hanford site contains millions of gallons of liquid radioactive waste, the most dangerous of which is held in tank farms.²⁶ Because many of these tanks have only single-layer shells, are past their designed lifespan, and in some cases have leaked waste into the soil, cleaning up the tank waste is one of EM’s highest priorities at the Hanford site. The purpose of the Waste Treatment Plant is to stabilize this waste and prepare it for permanent disposal.²⁷

In 2000, EM contracted with Bechtel to design and construct the Waste Treatment Plant.²⁸ That contract specified the project would cost \$4.3 billion and would be completed in 2011.²⁹ Since then, the cost of the Waste Treatment Plant has increased to at least \$13.4 billion and the schedule has slipped to at least 2019.³⁰ In 2012, GAO stated that additional delays were expected and that the \$13.4 billion cost figure was “highly uncertain and could grow substantially.”³¹

²³ Government Accountability Office, *Hanford Waste Treatment Plant: DOE Needs to Take Action to Resolve Technical and Management Challenges* (Dec. 19, 2012) (GAO-13-38).

²⁴ Defense Nuclear Facilities Safety Board, Briefing for Subcommittee Staff (April 30, 2013); Government Accountability Office, *Hanford Waste Treatment Plant: Contractor and DOE Management Problems Have Led to Higher Costs, Construction Delays, and Safety Concerns* (April 6, 2006) (GAO-06-602T).

²⁵ Parsons, *Briefing for Subcommittee Staff* (June 5, 2013).

²⁶ Government Accountability Office, *Hanford Waste Treatment Plant: Contractor and DOE Management Problems Have Led to Higher Costs, Construction Delays, and Safety Concerns* (April 6, 2006) (GAO-06-602T).

²⁷ Government Accountability Office, *Hanford Waste Treatment Plant: DOE Needs to Take Action to Resolve Technical and Management Challenges* (Dec. 19, 2012) (GAO-13-38).

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.*

The reasons for cost increases and schedule delays of the Waste Treatment Plant include:

- The fast-track, design-build contract model, in which construction of the plant began before designs were complete—and which required expensive reconstruction when designs changed;³²
- The technical challenges facing the “first-of-its-kind” project, including waste mixing, the incomplete understanding of waste stored at the site,³³ and the questionable reliability of “black cells”—radioactive areas that must operate for decades without maintenance³⁴
- Changing the scope of work during the project, such as increasing the volume of liquid waste the facility is required to process;³⁵ and
- Continued problems with Department oversight of Bechtel’s activities, including adherence to project reporting requirements, incentive fees paid despite the risk of missing target milestones, and insufficient independent reviews.³⁶

Every year that the schedule slips is another year that the Department must pay hundreds of millions of dollars for another contractor to manage the untreated waste. Since cleanup began at Hanford in 1989, the Department has spent over \$16 billion to manage the waste and explore ways to treat and dispose of it.³⁷

V. WITNESSES

Panel I

The Honorable Gregory H. Friedman
Inspector General
U.S. Department of Energy

The Honorable Joseph F. Bader
Board Member
Defense Nuclear Facilities Safety Board

J.E. “Jack” Surash
Deputy Assistant Secretary

³² Government Accountability Office, *Hanford Waste Treatment Plant: DOE Needs to Take Action to Resolve Technical and Management Challenges* (Dec. 19, 2012) (GAO-13-38).

³³ *Id.*

³⁴ *Id.*

³⁵ Bechtel, *Briefing for Subcommittee Staff* (June 14, 2013).

³⁶ Government Accountability Office, *Hanford Waste Treatment Plant: DOE Needs to Take Action to Resolve Technical and Management Challenges* (Dec. 19, 2012) (GAO-13-38).

³⁷ *Id.*

Acquisition and Project Management
Office of Environmental Management
U.S. Department of Energy

Panel II

Michael Graham
Principal Vice President
Bechtel National, Inc.

Michael McKelvy
President and Division Chief Executive
Government, Environment, and Infrastructure Division
CH2M HILL

Frank Sheppard, Jr.
Vice President and Deputy Project Manager
Parsons Corporation