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Testimony

Before the Subcommittee on the  
Legislative Branch, Committee on  
Appropriations, House of Representatives

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For Release on Delivery  
Expected at 9:00 a.m. EDT  
Wednesday, August 1, 2007

# CAPITOL POWER PLANT

## Status of Utility Tunnel Projects

Statement of Terrell G. Dorn, Director  
Physical Infrastructure Issues



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Madam Chair and Members of the Subcommittee:

I appreciate the opportunity to be here today to discuss and update the work we did last fall related to safety issues in the walkable utility tunnels (referred to as tunnels) managed by the Architect of the Capitol (AOC).<sup>1</sup> AOC, through the Capitol Power Plant, operates five walkable utility tunnels containing steam and chilled water pipes associated with serving the heating and cooling requirements of the U.S. Capitol and over 20 surrounding facilities.<sup>2</sup> In our work last fall, we addressed conditions in the tunnels and AOC's plans for addressing them. The Office of Compliance (OOC), which is responsible for advancing safety, health, and workplace rights in the legislative branch, and the tunnel workers had raised concerns about health and safety issues in the tunnels. As a result of these concerns, in January 2006, OOC issued citations for and asked AOC to address a potential asbestos hazard and heat stress conditions in the tunnels. In addition, in February 2006, OOC filed a complaint against AOC concerning hazards in the tunnels, including falling concrete, an inadequate communication system for these confined spaces, and inadequate escape exits (egresses). According to OOC officials, these conditions had been brought to AOC's attention by OOC inspectors as early as 1999, but AOC had not made sufficient progress in addressing them, and conditions in the tunnels had deteriorated further. In June 2007, AOC reached a settlement agreement with OOC to resolve both the citations and the complaint. The settlement agreement calls for the problems in the tunnels to be resolved within 5 years of the settlement date.

My statement today will focus on the projects and other steps AOC is taking to address the tunnel problems and the current schedule and estimated costs for the tunnel projects. Today's remarks are based on our prior work, AOC's quarterly reports on improvements to the utility tunnels, and discussions with AOC's tunnel project executive and project managers. We also reviewed the June 2007 settlement agreement between AOC and OOC related to the tunnels.

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<sup>1</sup>GAO, *Capitol Power Plant Utility Tunnels*, [GAO-07-227R](#) (Washington, D.C.: Nov. 16, 2006).

<sup>2</sup>Additional steam and chilled water pipes are buried in covered trenches referred to as nonwalkable tunnels, which are accessible through manholes. The nonwalkable tunnels also have repair and maintenance needs that were outside the scope of our work.

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## Summary

AOC has established a dedicated management team to oversee the tunnel improvement work, and the projects AOC is implementing to address problems in the tunnels are in various stages of planning, design, and construction. In November 2006, we reported that AOC had started to address problems in the tunnels, but their condition remained substantially unchanged. AOC has since made progress in addressing the high heat in one tunnel, continued to remove concrete at risk of falling, begun to install additional egresses, expanded the current communication system, and moved forward with some asbestos abatement. While AOC is taking steps to address the problems in the tunnels and some progress is being made, it will take focused and sustained management attention, additional funding, and several years to resolve the problems.

In August 2006, AOC issued a plan to resolve the problems with the utility tunnels identified in the OOC citations and complaint. According to this plan, the work would be completed by the middle of fiscal year 2012 and would cost about \$134 million. AOC has since revised many of the project schedules and cost estimates in the plan, and further revisions are likely. As of April 2007, AOC estimated the work would cost over \$200 million, an increase of at least 50 percent over its initial estimate. AOC officials attributed this increase to the development of additional information about the projects. For example, the contract AOC negotiated for the installation of additional egresses allowed more time and cost more than AOC initially anticipated because of the impact of working conditions in the tunnels on the contractor's bid. This newer estimate is, however, still an early estimate. It is based on limited information and preliminary decisions about how best to resolve the tunnel problems, and is expected to change as decisions are made and projects are designed. Congress has provided \$77.6 million in emergency supplemental funding for the tunnels in fiscal years 2006 and 2007. AOC has obligated most of the \$27.6 million provided in 2006 and spent about 13 percent of this funding. AOC has not yet submitted to Congress its obligation plan for the \$50 million provided in 2007. Congressional approval of this plan is necessary before AOC can obligate the funds. At this rate of progress and spending, it will be difficult for AOC to meet its commitment to resolve the tunnel problems over the next 5 years.

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## AOC Is Taking Steps to Address Issues in the Tunnels

AOC recently established a dedicated management team, including a project executive and two project managers, to oversee the tunnel improvement work, and projects to address the problems in the tunnels are in various stages of planning, design, and construction. Since last November, AOC has made some progress in addressing the problems with high heat, delaminating concrete,<sup>3</sup> insufficient egress, incomplete communication in the tunnels, and potential asbestos exposure. While these steps are positive, it will take focused and sustained management attention, additional funding, and several years to resolve the problems.

### *Heat*

In one tunnel, AOC has reduced the extreme heat and the potential for heat stress for tunnel workers that were raised as a major issue for three tunnels, but heat remains a problem in two tunnels. The heat issue was made worse after exhaust fans in the tunnels were turned off because of concerns about asbestos blowing into the air. After testing one tunnel to ensure there were no indications of asbestos in the air, AOC turned on the exhaust fans in that tunnel, lessening the heat there, but high temperatures remain in the two other tunnels. AOC officials noted that the high heat in the tunnels has affected and can affect the progress of all work in the tunnels because workers must take frequent breaks to exit the tunnels and cool off.

### *Structure*

Some tunnels have problems with concrete that has delaminated from walls and ceilings, creating a hazard for workers in the tunnels and weakening the tunnels' structural integrity. AOC's construction management division continues to remove delaminating concrete in some tunnel sections to reduce the hazard from falling concrete and has shored portions of the tunnels as necessary. AOC also has a contractor removing delaminated concrete in other tunnel sections. This contract includes provisions for the contractor, in consultation with a structural engineer, to replace the concrete if necessary. To date, no areas have been identified for immediate replacement of concrete. AOC officials said it will continue to evaluate and repair the delaminated sections as necessary.

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<sup>3</sup>Delaminating concrete is concrete that is separated from the steel reinforcing and is in danger of falling from the wall or ceiling.

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While assessments have reported that none of the tunnels were in danger of collapse, AOC determined that the roof of one of the tunnels should be replaced. AOC contracted with the Army Corps of Engineers for the first phase of this work, which was to replace the ceiling in 100-foot sections. However, the work is complicated by the tunnel's location under a public street, and more recent information shows that portions of the walls in this tunnel may also need to be replaced. AOC has put the construction of this project on hold to explore alternative approaches to the work that needs to be completed.

#### *Egress*

The tunnels are considered to be confined spaces that require regularly spaced emergency exits, or egresses. Work is underway to install two new egresses in the tunnels, and AOC expects to install additional egresses to limit the distance between them to no more than 600 feet. According to AOC officials, this work has taken longer and cost more than originally expected, in large part because of working conditions in the tunnels.

#### *Communication*

Working in confined spaces such as the tunnels requires the ability to communicate with workers outside the tunnels for coordination and emergency rescue in the event of illness or accident. According to AOC officials, the current communication system, which uses two-way radios, has been expanded and is operational in the tunnels. However, routine operations and inspections have revealed "dead spots" in two tunnels, which AOC is working to address.<sup>4</sup> AOC plans to explore the installation of a new communication system for the tunnels that would allow for communication with the U.S. Capitol Police and rescue workers if necessary. The new system would also indicate a worker's location automatically.

#### *Asbestos*

When the utility tunnels were constructed in the 1930s and 1950s, asbestos was used to insulate the steam pipes. In January 2006, OOC issued a citation calling for AOC to address the potential asbestos hazards in the tunnels. Since then, AOC has begun repairing damaged asbestos; begun

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<sup>4</sup>One of the two tunnels with "dead spots" is a nonwalkable tunnel.

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asbestos removal in some areas; and required anyone entering the tunnels to wear protective equipment, including respirators. Federal Occupational Health, a component of the U.S. Public Health Service, is on site to conduct asbestos monitoring of each team that enters the tunnels and reports that the results of the monitoring do not indicate exposure to asbestos above acceptable levels. At the tunnel workers' request, the National Institute for Occupational Safety and Health (NIOSH) conducted an investigation of the employees' exposure to certain hazards. Preliminary findings from NIOSH indicate that there is currently not a general concern about asbestos exposure that would require protective equipment to be worn, but heat is a major concern that could in part be reduced by eliminating the requirement to wear the protective equipment.

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## Project Schedules and Estimated Costs Continue to Be Revised

AOC has committed to OOC to resolve the tunnel problems by June 2012, and as of April 2007 AOC increased its total cost estimate for this work to over \$200 million. AOC officials attributed this increase to the development of additional information about the projects. AOC has revised many of the tunnel project schedules and cost estimates that it originally reported in its August 2006 Utility Tunnel Improvement Plan.

In November 2006, we reported that AOC's August 2006 plan was incomplete, in part because AOC had not completed its assessment of the tunnels. In the August plan, AOC developed an initial schedule and cost estimate for the projects it considered necessary to resolve the problems in the tunnels. This estimate relied on information on the condition of the tunnels that was available to AOC at that time. We expressed concern that the plan did not contain an analysis or discussion of options for addressing the needs of the tunnels, and we noted that an ongoing alternatives study to evaluate the long-term use of the existing tunnels and options for meeting the Capitol Hill Complex's future utility distribution needs would not be complete until the end of fiscal year 2008. According to AOC officials, they have requested that their consultant accelerate the alternatives study for the tunnel with the most structural damage. As we reported in November 2006, this study will explore the different options for the improvements and related costs that are considered the best solutions for resolving the tunnel problems and maintaining a reliable system for providing heating and cooling services to the Capitol complex.

While AOC has increased its cost estimate for the tunnel improvements to over \$200 million, much of the work that needs to be done is still in the planning or design phase, and as the work is designed and contracted for, the cost estimate is likely to change. Already, the cost estimate has

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increased at least 50 percent from the \$134 million AOC estimated it would need in August 2006. Schedules for some projects to address the tunnel problems have slipped and due to remaining uncertainty, delays on some projects may continue. For example, the awarding of construction contracts to replace the roof in one tunnel is being delayed while, among other things, uncertainty related to working in a public street is resolved.

Congress provided \$27.6 million in emergency supplemental funding for tunnel projects in fiscal year 2006. AOC has obligated most of this money and expended \$3.7 million as of July 26, 2007. In June 2007, Congress appropriated an additional \$50 million in emergency supplemental funding, and AOC has requested \$24.8 million in funding for the tunnels in fiscal year 2008. AOC has not yet submitted to Congress its obligation plan for the 2007 appropriation. Congressional approval of this plan is necessary before AOC can obligate the funds. At this rate of progress and spending, it may be difficult for AOC to meet its commitment to resolve the tunnel problems over the next 5 years.

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Madam Chair, this completes my prepared statement. I would be pleased to answer any questions that you or Members of the Subcommittee may have.

For further information about this testimony, please contact Terrell Dorn at (202) 512-6923. Other key contributors to this testimony include Maria Edelstein and Elizabeth Eisenstadt.

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