



U.S. Department of Energy
Office of Inspector General
Office of Audits and Inspections

Audit Report

The Department of Energy's K-25
Building Decontamination and
Decommissioning Project



Department of Energy
Washington, DC 20585

July 13, 2011

MEMORANDUM FOR THE SECRETARY

FROM: 
Gregory H. Friedman
Inspector General

SUBJECT: INFORMATION: Audit Report on “The Department of Energy’s K-25 Building Decontamination and Decommissioning Project”

BACKGROUND

The East Tennessee Technology Park (ETTP), formerly the Oak Ridge Gaseous Diffusion Plant, began operation during World War II as part of the Manhattan Project. As the Department of Energy's missions changed, operations at the Plant ceased and the Department began a massive environmental remediation effort with completion anticipated in 2016. In 2001, the Department estimated that it would decontaminate and decommission (D&D) – a process which readies a building for demolition – both the K-25 building and its sister facility, the K-27 building, at a cost of \$460 million. In 2002, the Department developed a plan to accelerate closure of ETTP, including a revised end date of 2008. The Department emphasized that risk reduction was a key factor for accelerating closure, noting that the K-25 and K-27 buildings posed some of the most serious environmental and safety risks at the site.

Because of nuclear criticality hazards, the size of the building and facility degradation, D&D of the K-25 building is one of the most costly and technically challenging projects at ETTP. In 2004, Bechtel Jacobs Company, LLC (Bechtel Jacobs), the managing contractor at ETTP, began the D&D of the K-25 building. This involved removing high-risk equipment containing fissile material, segregating asbestos, purging process gases, encapsulating process equipment and piping in foam, and disposing of thousands of converters, motors, and compressors.

We initiated this audit to determine if the Department had effectively managed the K-25 D&D Project.

RESULTS OF AUDIT

Problems with contract administration and project management likely impacted the Department's ability to effectively manage the many technical challenges it encountered during its attempts to complete the K-25 D&D Project. Because of these issues, the Department, in our opinion, was not in a position to fully grasp the ultimate cost and time required to D&D K-25, an effort on which the Department had spent about \$717 million through the end of 2010. For example, the Department:

- Was unable to confirm that contractor reports on cost and schedule performance were accurate. Because the cost and schedule estimates used to measure performance in the

contractor's Earned Value Management System were not based on an independent Government cost estimate and had not been developed from the "bottom-up" as required, they proved to be unreliable;

- Had not performed timely analyses to evaluate the merit of outstanding issues described in Requests for Equitable Adjustment (REAs) submitted by the contractor from 2004 to 2006. As a result, management may not have fully understood the scope and severity of the outstanding technical challenges described in the REAs, despite its periodic review of the Project's progress. The requests sought to increase the contract award by about \$217 million for the D&D of the K-25 and K-27 buildings to address key issues such as removal of high risk equipment and the increased presence of Technetium-99 contamination in the buildings. Timely reviews of the contractor's basis for making the requests would have better informed the Department of cost and schedule challenges, the manner in which the contractor was addressing them, and provided the opportunity to promptly intervene to protect the Government's interest in the Project as it evolved; and,
- Had not fully updated its \$622 million cost baseline for completing the K-25 Project. As of February 2011, the Department had not approved a revised baseline for completing the Project despite its recognition that completion may not occur until 2016 and, that the total cost could almost double, rising to as much as \$1.2 billion.

The Department's original cost and accelerated schedule estimates were significantly exceeded due to several technical issues, including nuclear criticality hazards, the sheer size of the building, and the building's degrading physical plant. For example, building degradation ultimately resulted in injury to a worker, requiring a complete revision of the D&D plan to ensure worker safety. Because of these complexities and stringent regulatory requirements, the need to maintain firm control over this effort through strong project management controls and practices was critical.

While we could not directly link contract and project management weaknesses to discrete cost and schedule impacts, in our opinion, there was little doubt that these issues adversely affected management's ability to effectively manage the burgeoning cost of the K-25 D&D Project. For example, even though there were significant technical differences in the K-25 and K-27 cleanup efforts, the Department relied on a joint baseline to support the \$460 million cost estimate for completing the work at both the K-25 and K-27. Attempting to manage the complex D&D efforts for the K-25 building using a joint baseline with the K-27 building likely allowed delays and cost impacts to go unnoticed. Based on our analysis, numerous events occurred during the cleanup effort that should have caused management to reassess its strategy to manage K-25 and K-27 as a single project, rather than discrete efforts. Despite the indicators of project management shortcomings, the Department did not approve a separate baseline for K-25 until 2008, when the estimated cost for that building alone had grown to \$622 million. Since that time, the baseline to complete the D&D of the K-25 building had not been updated even though the costs were projected to have almost doubled. An accurate baseline provides the Department a critical tool in its effort to manage ongoing D&D efforts.

Further, the Department had not assigned adequate staff or provided dedicated, consistent leadership to oversee the Project. Notably, in May 2010, an External Independent Review pointed out that the Department had not assigned sufficient Federal staff to the Project. Even though Department staffing models indicated that 22 full-time staffing positions were needed to oversee K-25, only 9 staff member equivalents were actually assigned to the Project. Additionally, the Department had not assigned a Federal Project Director dedicated solely to K-25. Instead, a Federal Project Director was assigned to the ETTP site as a whole, and was responsible for overseeing multiple efforts, including the K-25 cleanup; the D&D of 125 major buildings; remedial actions on 2,200 acres and 168 release sites; and, site infrastructure services such as fire protection, utility services, maintenance, and capital repairs. Further, there was frequent turnover with four different Federal Project Directors since 2007.

Failure to properly address the problems in the management of the K-25 Project could result in further delays in achieving overall site closure goals, increased safety risks to Project workers and the environment, and continued increases in cost. In recognition of these concerns, the Department had taken a number of contract related actions and it plans to address staffing issues. These steps should, if successfully implemented, help to address some of the problems we observed. However, additional action is necessary and this report includes a series of recommendations designed to help strengthen overall management of the K-25 Project.

Lessons Learned/Best Practices

Managing costly environmental remediation projects has been recognized as a problem for the Department for many years. In our view, the ETTP experience provides a series of lessons learned and, as a corollary, best practices which can be employed to address aspects of the project management challenge going forward. These include ensuring that:

1. Project baselines are updated on a real time basis, so that they maintain their effectiveness as a primary management tool;
2. Contractor performance is measured against established metrics, including realistic and reliable cost estimates;
3. Contract terms are kept current so that they track with project events as reflected by, among other things, contractor REAs;
4. Project scopes are realistic and manageable, recognizing the technical challenges facing many Department environmental remediation efforts; and,
5. Federal staffing is sufficient, in terms of size and expertise, to provide effective project oversight.

As we viewed the ETTP situation, these lessons related to project management execution rather than to any identified gap in policies or procedures.

MANAGEMENT REACTION

The Oak Ridge Office generally agreed with the report's findings and recommendations. Management also provided information on completed and planned corrective actions. However, management disagreed with our finding in the report that it had not evaluated the contractor's REAs. Our review, however, showed that the Department had not reviewed \$217 million of REAs related to the K-25 and K-27 buildings submitted by Bechtel Jacobs between 2004 and 2006 until August 2007, when it was preparing to restructure the contract. Although management periodically reviewed the Project's progress, it may not have fully understood the scope and severity of technical challenges confronting the Project because it had not performed timely analyses of the REAs.

Management's comments and our response are more thoroughly discussed in the body of the report and are included in Appendix 3.

Attachment

cc: Deputy Secretary
Associate Deputy Secretary
Under Secretary for Nuclear Security
Principal Deputy Assistant Secretary for Environmental Management
Chief of Staff

REPORT ON THE K-25 BUILDING DECONTAMINATION AND DECOMMISSIONING PROJECT

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THE K-25 BUILDING DECONTAMINATION AND DECOMMISSIONING PROJECT

K-25 Building D&D Project

The Department of Energy (Department) had not effectively managed the K-25 Decontamination and Decommissioning (D&D) Project. Despite the expenditure of nearly \$717 million and 6 years of effort, the Department has significantly exceeded its estimated cost and schedule in completing the D&D of the K-25 building. The Department currently estimates that the Project, planned for completion in 2008, could extend to 2016. Further, the total cost for the Project, originally estimated at \$460 million for the D&D of both the K-25 and K-27 buildings, could cost as much as \$1.2 billion for the K-25 building alone. This estimate is significantly higher than the baseline approved in February 2008, which estimated the D&D costs for K-25 to be about \$622 million.

The technical challenges encountered in the D&D of the K-25 building, including nuclear criticality hazards, the sheer size of the building, and the building's extensive degradation, significantly contributed to cost and schedule growth. However, despite the importance of this effort and the serious environmental risks associated with it, inadequate contract administration and project management of the D&D of the K-25 building likely impacted the Department's ability to effectively manage the challenges it encountered and, in our opinion, prevented it from fully understanding the ultimate cost and time required to D&D the K-25 building.

Administration and Management of K-25 D&D

The Department had not effectively administered the East Tennessee Technology Park (ETTP) closure contract as it related to the K-25 Project and had not effectively implemented project management controls over the D&D of K-25. Additionally, the Department had not ensured consistent project management leadership over the K-25 Project nor provided adequate staff to oversee the Project. Although we could not directly link these weaknesses to discrete cost and schedule impacts, we believe that taken together, they likely had an impact on cost and progress.

Contract Administration

The Department had not always adequately administered its contract to close ETTP, especially as it related to the contractor's Requests for Equitable Adjustment (REAs) affecting the D&D of K-25. Since 1997, the Department has awarded multiple contracts with Bechtel Jacobs Company,

LLC (Bechtel Jacobs), in an attempt to complete the D&D work at the site. The Department first entered into a contract with Bechtel Jacobs to manage ETTP in December 1997. In 2003, the Department and Bechtel Jacobs renegotiated a cost-plus-incentive-fee contract. This closure contract was the vehicle by which the Department intended to meet its goal to accelerate closure of ETTP by 2008. Within one year of renegotiating the 2003 closure contract, the Department noted concerns with Bechtel Jacobs' performance in quarterly contract reviews. In particular, these reviews often noted dissatisfaction with progress on the K-25 building D&D. As a result, from April 2005 through March 2008, the Department paid Bechtel Jacobs the minimum fee allowed under the incentive fee contract.

Although the Department realized that its accelerated closure goals would not be met, it renegotiated another contract with Bechtel Jacobs in 2008. At the time that the contract was renegotiated, Bechtel Jacobs had numerous outstanding REAs. For example, between 2004 and 2006, Bechtel Jacobs had submitted \$217 million in REAs related to the K-25 and K-27 buildings, including REAs related to removal of high risk equipment and the increased presence of Technetium-99 contamination in the buildings. Although management periodically reviewed the Project's progress, the Department had not performed a timely analysis of the vast majority of the REAs for merit or otherwise reviewed the outstanding issues raised by the contractor. In discussions with management, they stated that the REAs were fully evaluated prior to the contract restructuring. Our review, however, showed that the Department had reviewed only \$85 thousand of the \$217 million prior to 2007, and had not reviewed the remaining REAs submitted by Bechtel Jacobs between 2004 and 2006 until August 2007, when it was preparing to restructure the contract.

Project Baselines

Despite the size and complexity of the K-25 Project, the Department had not managed it with a separate baseline until 2008, likely impacting the effectiveness of project management controls. Originally, the K-25 Project was included as a subproject within the overall ETTP site cleanup effort, rather than managed as an individual capital project under the Department's Project Management Order 413.3A, *Program and Project Management for the Acquisition of Capital Assets*.

The ETTP site cleanup includes the K-27 building D&D, a facility similar to the K-25 building. The D&D of the K-25 and K-27 buildings were included in the same baseline in an effort to accelerate the cleanup of ETTP. Prior to 2008, the Department relied on a \$460 million cost estimate for completing the D&D of both the K-25 and K-27 efforts. Since initial cleanup work began, the bulk of the effort has focused on the K-25 building.

Based on our analysis, numerous events occurred on the cleanup effort that, in our opinion, should have caused management to realize that D&D of both K-25 and K-27 was too big to be managed as one project and indicated a need to break it down into discrete components. These events included such issues as the large escalation in Project costs, significant slippage in Project timelines, and the aforementioned REAs totaling about \$217 million that were submitted by the contractor between 2004 and 2006 regarding various cost and schedule impacts of the K-25 and K-27 cleanup effort. Despite these indicators of major Project deficiencies, it was not until February 2008, that the Department approved an initial separate baseline of \$622 million for the D&D of the K-25 building.

Currently, the Department does not have an updated or approved baseline for completing the entire K-25 D&D Project. In August 2009, Bechtel Jacobs informed the Department that the K-25 Project would cost at least \$278 million more than the \$622 million baseline established in 2008. The Department subsequently decided to end Bechtel Jacobs' participation at the site effective June 2011; 6 months earlier than scheduled due to ongoing performance issues. The Project was re-baselined to \$787 million in September 2010, to reflect the contractor's exit from the site prior to completion of the D&D of the K-25 building. The Department's approved baseline includes only the work to be performed by Bechtel Jacobs prior to its departure from the site. Program officials told us that a new baseline will be approved for completion of the K-25 D&D only after the selection of a new contractor at the site. The Department estimates that the D&D of K-25 may not be completed until 2016 and may cost as much as \$1.2 billion.

Earned Value Management System

Additionally, the Department did not ensure that progress was being properly measured against realistic and comprehensive estimates. The Department relied on the contractor's Earned Value Management System (EVMS) to evaluate contractor performance. The EVMS is the primary cost and schedule tool used to monitor and report progress both internally to the contractor and externally to the Department. However, throughout Bechtel Jacobs' contract, the data provided from the EVMS did not accurately portray the status of the Project. The data provided was inaccurate, in part, because the Project's cost and schedule estimates were never adequately established or revised to ensure they reflected current conditions.

Specifically, prior to the Project's start, an independent Government-cost estimate was not obtained to establish a benchmark for comparison to the contractor's cost estimate. Further, as situations changed significantly, a bottom-up estimate was not prepared to adjust the current costs of completing the Project. A bottom-up estimate breaks-down each task into smaller components, which are then rolled-up to develop a cost estimate for the entire task, resulting in an estimate that is far more accurate. Bechtel Jacobs' EVMS Project Controls System Description requires that a bottom-up estimate for completion of the Project be developed at least annually. Despite this requirement, a bottom-up estimate for the K-25 building was not performed prior to 2009. For example, after a D&D worker fell 30 feet through the building's deteriorating operating floor in 2006, Bechtel Jacobs installed nets and barriers to prevent failed portions of the operating floor from falling onto lower floors. However, the Department did not require a bottom-up estimate of the Project, despite the significant changes brought about by this incident and the fact that they added at least \$60 million to the Project cost.

Additionally, neither the Department nor Bechtel Jacobs developed a comprehensive, bottom-up estimate for the Project in developing the 2008 baseline used in the EVMS. Rather, the baseline was established by, in effect, zeroing out all cost and schedule variances, and making the actual costs incurred the basis of the estimate. It was not until one year later, in August 2009, that Bechtel Jacobs performed a bottom-up estimate of the Project and determined it would take at least another \$278 million to complete the Project. By that time, both the

Department and Bechtel Jacobs had become aware of deficiencies in the cost estimates being used in the EVMS, and realized that the reports generated from the system were not true indicators of the Project's status.

In order to determine why the EVMS had not reflected the magnitude by which the Project was over cost and behind schedule, the Department initiated a review of the system. The review, completed in May 2010, identified failures in the change control process, performance measurement metrics, and the lack of annual bottom-up analyses. Subsequently, the Department approved a new baseline that it had requested from Bechtel Jacobs for the remainder of work to be performed under its contract. However, the Department did not re-review the EVMS system to verify that the metrics reported on the new baseline would provide an accurate measure of Project status.

Departmental Oversight and Staffing

The Department had not ensured that the K-25 Project had consistent and adequate oversight and staffing. The Department had not assigned a Federal Project Director dedicated solely to the K-25 Project. Instead, a Federal Project Director was assigned to the ETPP site as a whole, and was responsible for overseeing multiple projects. These responsibilities included the D&D of 125 major buildings; remedial actions on 2,200 acres and 168 release sites; and, site infrastructure services such as fire protection, utility services, maintenance, and capital repairs. Additionally, there was frequent turnover of staff in the Federal Project Director position. Since 2007, four different Project directors have overseen the Project.

The K-25 Project also had insufficient Federal staffing levels, which contributed to the inadequate oversight of the Project. In May 2010, an External Independent Review (EIR) identified inadequate Federal staffing levels on the Project. The EIR Team reviewed the Federal Project's calculations for staffing using the Office of Engineering and Construction Management staffing guide and model. The model showed that the Federal Project staff for K-25, as a separately managed Project, should be 22 full-time-equivalents (FTE). However, the Federal Project staff had only six full-time staff and an additional three FTEs of matrix support, for a total Federal Project staff for

K-25 of nine FTEs. Accordingly, the EIR Team concluded that the Federal Project was severely understaffed. At the recommendation of the EIR Team, the Department ran its own staffing model of the entire ETTP cleanup effort and identified the need for 63 additional Federal staff to meet the Department's minimum staffing requirements to adequately oversee work performed under the Bechtel Jacobs contract. Despite these studies, the Department has only requested funding for an additional 10 Federal staff. Even if the additional staff is allocated solely to the K-25 Project, the Project still will not meet the minimum level recommended by the EIR Team to adequately manage the Project. In our opinion, the frequency of changes in Federal Project leadership, as well as inadequate Federal staffing levels, have contributed to past Project performance problems and may allow them to continue in the future.

Impact on Project Risk and Cost

Failure to properly address the problems in the management of the K-25 Project could result in further delays in achieving overall site closure goals, increased safety risks to Project workers and the environment, and continued increases in Project costs. The K-25 building D&D is a critical path item in the Department's site closure plan for the ETTP. When it embarked upon accelerated closure in 2002, the Department planned to have the ETTP site cleaned up and closed in 2008. Barring further problems, the Department estimates that just the D&D of the K-25 building alone will not be completed until as late as 2016.

Further Project delays will likely increase the environmental and safety risks posed by the K-25 building and other site facilities. The K-25 building is a Nuclear Category 2 facility. As such, it has the potential for nuclear criticality events and represents a level of hazard for which significant management attention is warranted thereby requiring on-site emergency planning. Complicating that inherent risk is the level of degradation that the building has encountered, and continues to encounter on a daily basis. In both our 1998 report on [*Decontamination and Decommissioning at the East Tennessee Technology Park*](#) (ER-B-99-01, December 1998) and our 2003 report on [*Reindustrialization of the East Tennessee Technology Park*](#) (DOE/IG-0623, October 2003), the Office of Inspector General reported concerns with the condition of the K-25 building, including the leaking roof and damaged floor panels. Additionally, in 2002, the Department reported its concerns with the degrading facility. In particular, the Department noted

that as a result of rapid degradation, the building was no longer seismically qualified and risks to D&D workers had increased. Air quality issues from mold spores and fungi have already degraded the facility such that respiratory protection is required for entry. According to Program officials, the Department could have significantly reduced the costs to D&D the K-25 building had it continued to support the building's infrastructure, including the replacement of the deteriorating roof, prior to beginning D&D efforts on the massive building. For example, building deterioration has significantly slowed the pace of cleanup efforts and the Department had to implement costly safety measures to protect the D&D workers from the deteriorating conditions. Furthermore, as a result of the continuing deterioration of the building, the K-25 D&D Project was re-planned with an alternate D&D strategy to place greater reliance on heavy equipment to demolish the building while minimizing labor inside the building.

Delays in completing the D&D of K-25 have been costly. The D&D of the K-25 and K-27 buildings was originally estimated to cost \$460 million, however, the Department currently expects the D&D of only the K-25 building to cost more than \$1.2 billion. In addition to the increased D&D costs, the Department continues to incur costs for infrastructure support, such as utilities, security, fire protection, and in particular, surveillance and maintenance costs. For example, the surveillance and maintenance costs for the K-25 facility are about \$10 million per year.

Management Actions

The Department has taken significant action in the areas of contract administration and project management to address and correct the management weaknesses that led to cost and schedule increases. After learning in August 2009 that the Project would cost at least \$278 million more than expected, the Department sought to identify and correct deficiencies which had contributed to the increase and allowed it to go undetected. Specifically, the Department initiated an independent fact-finding review and acted on its recommendations. These actions included updating the Project's estimate using a bottom-up estimate; conducting weekly Project meetings to track the contractor's performance; preparing a baseline change proposal to adjust the baseline in order to make EVMS metrics more accurate; and, initiating a special cost accounting analysis of the EVMS to determine where the system failed to identify cost overruns on the

Project. Additionally, several other reviews have been performed which provided recommendations on project management at the site. The Department is currently working to implement those recommendations as well. The Department also requested that Bechtel Jacobs prepare a plan to exit the site 6 months prior to the expiration of their contract. The Department prepared an acquisition plan and subsequent solicitation for a successor contractor.

According to Department officials, in its successor contract for the ETTP, the Department plans to improve its overall contract administration. For example, Department officials told us that they plan to include contract line items for discrete areas of work which will be assigned upon successful completion of other discrete areas of work. According to Department officials, if the contractor is unsuccessful, the Department would not assign other line items. Additionally, the Department has requested additional staff be dedicated to the Project to increase Federal oversight, and instituted new performance metrics for the K-25 building D&D processes.

We commend the Department's actions and believe that, if fully acted upon, they will significantly improve the Department's oversight and management of the K-25 Project. However, we believe that additional enhancements to contract and project management are needed. Specifically, the Department (1) had not developed and approved a cost and schedule baseline to complete the D&D of the K-25 building; (2) continues to rely on the contractor's EVMS even though it had not reviewed the system to verify that the information reported accurately measured progress since approval of the September 2010 baseline; and, (3) had not ensured that consistent and adequate Departmental leadership and staffing for the Project is maintained. As such, we made specific recommendations to facilitate successful completion of the K-25 Project.

RECOMMENDATIONS

Several additional actions are necessary to further improve management of the Project and help ensure it is completed in a more timely and cost effective manner. Accordingly, we recommend that the Acting Manager, Oak Ridge Office (ORO), ensure that:

1. An updated baseline is created and approved in a timely manner for the follow-on contractor;

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2. An EVMS review is performed to provide assurance that EVMS metrics reported on the new baseline will provide an accurate measure of Project status; and,
 3. Consistent and adequate Federal project leadership and staffing is maintained.

**MANAGEMENT AND
AUDITOR COMMENTS**

Management generally agreed with the report's findings, but expressed concern with the portion of our report regarding the Department's management and disposition of the Bechtel Jacobs REAs. Specifically, ORO disagreed that it had not analyzed the vast majority of the REAs for merit or otherwise reviewed the outstanding issues raised by the contractor until the contract was renegotiated. ORO management contended that the REAs were fully evaluated prior to the contract restructuring and provided the Office of Inspector General with the Pre-Negotiation Memorandum and technical evaluations that were performed as part of the contract negotiations to support their position.

Our review, however, showed that the Department had not reviewed nearly \$217 million of REAs related to the K-25 and K-27 buildings submitted by Bechtel Jacobs between 2004 and 2006 until August 2007, when it was preparing to restructure the contract.

The Oak Ridge Office agreed with the report's recommendations and developed corrective actions designed to further improve management of the Project and help ensure it is completed in a timelier and cost effective manner. Specifically, the Department has awarded a contract for the remaining environmental cleanup at ETTP. The contract requires the contractor to submit a plan for a performance measurement baseline within 90 days of completion of the contract transition. At that time, the Department's Office of Construction and Engineering Management will schedule a review of the proposed baseline and a Baseline Change Proposal will be submitted to Department Headquarters for approval. The Department will perform an EVMS review of the new contractor's system and will continue surveillance of the Project to ensure compliance with EVMS requirements. The Department also assigned a new Federal Project Director in January 2010, and intends to leave the Federal Project Director in place until the Project is completed. In addition, ORO is working to ensure that adequately trained and certified staff is available.

We believe that the ORO's completed and planned corrective actions are generally responsive to our recommendations.

Appendix 1

- OBJECTIVE** The objective of this audit was to determine whether the Department of Energy (Department) was effectively managing the K-25 Building Decontamination and Decommissioning (D&D) Project.
- SCOPE** We conducted this audit from December 2009 through April 2011, at Department Headquarters in Washington, DC and the Oak Ridge Office in Oak Ridge, Tennessee. The audit scope included D&D efforts on the K-25 building from 2004 through December 2010.
- METHODOLOGY** To accomplish the audit objective, we:
- Reviewed regulations, directives, contract requirements, and performance measures relating to the K-25 Building D&D Project;
 - Determined and evaluated the current status of the K-25 Project;
 - Reviewed the baseline and other project management tools associated with the K-25 Project;
 - Evaluated internal controls associated with the K-25 Project;
 - Reviewed prior audits and reviews relating to the K-25 Project; and,
 - Held discussions with key Department and contractor officials responsible for the K-25 Project.

We conducted this performance audit in accordance with generally accepted Government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. Accordingly, we assessed the significant internal controls and performance measures established under the *Government Performance and Results Act of 1993*. We determined that although a strategic goal related to cleanup of the contaminated nuclear weapons manufacturing and testing sites across the United States was identified, this goal does not specifically relate to Project management of the D&D of the K-25 building. Finally, since we did not rely upon automated

Appendix 1 (continued)

data processing information to accomplish our audit objective, we did not conduct an assessment of the reliability of computer processed data.

Management waived an exit conference.

PRIOR AUDIT REPORTS

- [*Reindustrialization of the East Tennessee Technology Park*](#) (DOE/IG-0623, October 2003). The audit disclosed that since the reindustrialization program began, work on the site's most contaminated and unsafe buildings has been deferred while buildings with perceived reuse potential have been cleaned up in an effort to increase commercial tenants at the site. Despite this approach, the Department of Energy (Department) could not demonstrate that the program was operating as intended. The auditors concluded that the goals of the reindustrialization program were inconsistent with the broader programmatic objectives of the Environmental Management (EM) program. The auditors suggested that the Department would have improved its return on investment if the use of appropriated funds had been focused on efforts to decontaminate, decommission, and demolish the East Tennessee Technology Park's (ETTP) higher risk facilities. The report noted that the Department had done little to lessen the risks associated with K-25 and that Bechtel Jacobs Company, LLC reported that from 1998-2002, the number of damaged roof panels increased by 546 percent and the number of damaged floor panels nearly doubled. Finally, the auditors recommended that the Assistant Secretary for EM discontinue the use of cleanup funds to prepare ETTP facilities for reuse, except in cases where the Community Reuse Organization of East Tennessee has formally agreed to accept ownership.
- [*Decontamination and Decommissioning at the East Tennessee Technology Park*](#) (ER-B-99-01 December 1998). The auditors concluded that the major ongoing decontamination & decommissioning (D&D) project at the ETTP did not involve the facility which posed the greatest risks from exposure to radioactive waste, hazardous or toxic materials, and structural collapse. The audit disclosed that this condition occurred because the Oak Ridge Office (ORO) did not fully emphasize reductions of health, safety and environmental risks when it selected and performed D&D projects at the ETTP. As a result, the auditors concluded that a high-risk facility would continue to deteriorate, and hazards to workers and the environment would be increased. Also, the Department could incur \$34.5 million in unnecessary surveillance and maintenance costs between Fiscal Years 1998 and 2002, for a building which poses significant risks to workers and the environment. The audit recommended that ORO require that D&D projects be selected and performed with greater emphasis on reducing health, safety, and environmental risks for workers and the public.



Department of Energy

Oak Ridge Office
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Oak Ridge, Tennessee 37831

June 20, 2011

MEMORANDUM FOR GEORGE W. COLLARD
ASSISTANT INSPECTOR GENERAL FOR AUDITS
OFFICE OF INSPECTOR GENERAL

FROM: PAUL M. GOLAN *[Signature]*
ACTING MANAGER

SUBJECT: COMMENTS ON DRAFT REPORT, "THE DEPARTMENT OF
ENERGY'S K-25 BUILDING DECONTAMINATION AND
DECOMMISSIONING PROJECT"

The Oak Ridge Office (ORO) appreciates the opportunity to comment on the Office of Inspector General's (OIG's) May 13, 2011 draft audit report on the K-25 Project. ORO generally agrees with the report, and this memorandum transmits ORO's response to each of the recommendations along with specific corrective actions and timetable. However, there is one point with reference to the Department of Energy's (DOE's) management of the Bechtel Jacobs Company LLC (BJC) Requests for Equitable Adjustments (REAs) which is factually inaccurate that we would like to correct. Specifically, note the top of Page 2 under *Contract Administration*, "Although management periodically reviewed the project's progress, the Department had not analyzed the vast majority of the REAs for merit or otherwise reviewed the outstanding issues raised by the contractor until the contract was renegotiated". The REAs were fully evaluated prior to the contract restructuring. DOE provided the OIG Pre-Negotiation Memorandum (PNM) to supplement the audit report's REA discussion, which included the evaluation of 21 new scope requirements in the amount of approximately \$134 million, the majority of which were submitted as REAs. We believe the PNM and technical evaluations of the BJC REAs provided to OIG demonstrated DOE's proper evaluation and disposition of the REAs in question. As part of the negotiation, BJC provided a full release of all changes that were known or should have been known as of the date of the modification.

The findings indicated that contract administration and project management likely impacted DOE's ability to effectively manage the many technical challenges it encountered: 1) lacked ability to ensure that contractor reports of cost and schedule performance were accurate; 2) lacked full understanding of scope and severity of technical challenges; and 3) did not fully update its \$622 million cost baseline for completing the K-25 Project. Therefore, the report contains three recommendations to further improve management of the project and help ensure it is completed in a timelier and cost effective manner.

George W. Collard

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June 20, 2011

SUBJECT: COMMENTS ON DRAFT REPORT, "THE DEPARTMENT OF ENERGY'S K-25 BUILDING DECONTAMINATION AND DECOMMISSIONING PROJECT"

ORO agrees with the recommendations and will take the following actions:

Recommendation 1: An updated baseline is created and approved in a timely manner for the follow-on contractor.

Planned Action: On April 29, 2011, a contract DE-SC-0004645, was awarded to URS/CH2M Oak Ridge LLC (UCOR) for the remaining environmental cleanup at the East Tennessee Technology Park. The Transition Period is from April 29, 2011, through July 31, 2011. Contract true-up and initial Baseline Development Training is scheduled for June 29 and 30, 2011. The contract requires UCOR to submit a plan for a performance measurement baseline (Section C.2.9.17.2) for the K-25 project within 90 days of completion of contract transition (November 2011). At that time, DOE's Office of Engineering and Construction Management (OECM) will schedule an external review of the proposed baseline, and based upon DOE concurrence, a Baseline Change Proposal (BCP) will be submitted to DOE Headquarters for approval as required in DOE Order 413.3B. The anticipated date for approval of this baseline is no later than June 30, 2012.

Recommendation 2: An Earned Value Management System (EVMS) review is performed to provide assurance that EVMS metrics reported on the new baseline will provide an accurate measure of project status.

Planned Action: An EVMS review of the UCOR system will be conducted by DOE in accordance with contract terms, which require UCOR to submit their performance management baseline by November 1, 2011. Six months of EVMS data is typically needed for a valid EVMS certified review. Both contractors in the UCOR partnership team (URS and CH2M HILL) have certified EVMS systems in place elsewhere in the DOE Complex.

The UCOR contract also requires that the baseline and management of the baseline comply with American National Standards Institute (ANSI)/Electronic Industries Alliance-748. Furthermore, ORO EM complies with procedure EM-1.9, "Earned Value Systems Surveillance". This process requires surveillance of EM projects based on the ANSI-748. These procedures will be maintained by ORO for EM projects to ensure compliance with EVMS requirements. Action to be completed by September 30, 2012.

Recommendation 3: Consistent and adequate Federal project leadership and staffing is maintained.

Planned Action: In January 2010, the Assistant Manager for EM assigned Jim Kopotic as the K-25 Federal Project Director (FPD). Since that time, Mr. Kopotic has worked to revise the

George W. Collard

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June 20, 2011

SUBJECT: COMMENTS ON DRAFT REPORT, "*THE DEPARTMENT OF ENERGY'S K-25 BUILDING DECONTAMINATION AND DECOMMISSIONING PROJECT*"

K-25 Project Execution Plan, consistent with how the project is being executed. In addition, he worked with the Project Team to revise the Integrated Project Team (IPT) Charter, with a heavy emphasis on performance. Key changes include:

- Weekly IPT meetings.
- Improved and increased communications between DOE and contractor.
- Established specific project metrics (quantity and unit rate) and an action tracker that are revised weekly.
- Additional EM and DOE Subject Matter Experts have been assigned.

It is intended that Mr. Kopotic remain the FPD until the project is complete. In addition, ORO is working to ensure that adequately trained and certified staffs are available. EM recognizes the importance of achieving FPD certification at the appropriate level required for the project. To this end, Mr. Kopotic is currently pursuing the necessary training and gaining the required experience to qualify for certification as an FPD Level IV. He plans to submit his FPD certification application in mid-August 2011 for consideration by the DOE Certification Review Board with the expectation that he will be certified Level IV by the end of this fiscal year. Moreover, ORO EM has recently been reorganized to provide maximum resources to Federal Project Directors with the organization structured in a way that FPDs have all EM resources at his or her disposal, as needed. The Oak Ridge EM reorganization was finalized on March 27, 2011; and, as such, ORO considers this action closed.

If you have any questions or would like additional information, please don't hesitate to contact John Eschenberg at (865) 576-4442 or Jim Kopotic at (865) 576-9441, of my staff.

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