

November 1992

NUCLEAR WEAPONS COMPLEX

Weaknesses in DOE's Nonnuclear Consolidation Plan





United States
General Accounting Office
Washington, D.C. 20548

**Resources, Community, and
Economic Development Division**

B-250995

November 19, 1992

The Honorable John Glenn
Chairman, Committee on
Governmental Affairs
United States Senate

The Honorable Timothy E. Wirth
United States Senate

The Honorable Tony P. Hall
The Honorable Bob McEwen
The Honorable David E. Skaggs
The Honorable C. W. Bill Young
House of Representatives

This report responds to your requests that we examine the Department of Energy's (DOE) plans to consolidate the agency's nonnuclear production facilities—those facilities that make the nonnuclear components for weapons. As you know, the end of the cold war and the anticipated reductions in the nation's nuclear weapons arsenal has resulted in DOE studying ways to consolidate the agency's nuclear weapons complex. In January 1991, DOE issued its Nuclear Weapons Complex Reconfiguration Study, which laid out a framework for developing plans to consolidate the complex into one that is smaller, less diverse, and less expensive to operate. Because consolidation will involve important decisions on the future of many facilities and will affect thousands of workers and the surrounding communities, DOE must assure the public that its decisions are fully supportable.

In December 1991, the Secretary of Energy announced plans for accelerating the consolidation of the complex's nonnuclear production facilities. Under this consolidation, DOE's preferred option would be to locate most of the nonnuclear activities at the agency's Kansas City Plant in Missouri. A number of other nonnuclear activities would move to other DOE facilities or be privatized. Because DOE based its preferred option decision on the results of its September 1991 Nonnuclear Consolidation Plan (NCP), you wanted us to evaluate the NCP. Specifically, we agreed to examine the appropriateness of the NCP's scope, cost analysis, and assessment of technical risks. We did not attempt to determine the best option for consolidating nonnuclear facilities. Because DOE has not made a final decision on nonnuclear consolidation, we are also providing you

information on DOE's current efforts to study various aspects of consolidation.

Results in Brief

There are a number of weaknesses in DOE's NCP. First, because the NCP's scope was limited to examining single-site consolidation alternatives, the decision to select Kansas City as the preferred option was made without analyzing other nonnuclear options. These options included downsizing and modernizing all facilities in place or maximizing consolidation by eliminating all nonnuclear sites and relocating their functions to a nuclear site or a national laboratory. Without a thorough analysis of all consolidation possibilities, DOE cannot be assured that its preferred option minimizes costs and technical risks.

Second, the cost of consolidation is not fully known because the NCP did not include all consolidation costs. The NCP's estimate of \$352 million to implement its preferred option does not include costs such as an additional \$47 million for terminating personnel. Moreover, other costs related to decontaminating and decommissioning facilities and to transferring work that the facilities conduct for others were not included. DOE's own detailed cost estimates conducted since the NCP was released show that costs for the preferred alternative are increasing.

Third, the NCP did not fully address the technical risks of nonnuclear consolidation. The NCP assumed that the technical risk of moving each nonnuclear activity was the same. No additional weight was given in the analysis to moving those activities, such as the manufacture of neutron generators, that DOE acknowledges pose the greatest technical risks. Furthermore, the NCP did not assess the technical risk of an accelerated consolidation schedule, particularly its impact on the production of limited-life components—those components that must be periodically replaced to keep the nuclear weapons operational.

Since the NCP's release in March 1992, DOE has continued to study various aspects of consolidation. Among other things, DOE is studying some additional options for consolidating nonnuclear activities, reexamining the costs in more detail, and reviewing the overall size and capabilities of the future complex. However, even with these additional studies DOE needs to do more to be assured that all reasonable options have been explored and that technical risks have been thoroughly examined.

Background

Nuclear weapons contain a wide variety of nonnuclear components—items that are not made from nuclear materials. These components comprise the majority of parts in nuclear weapons, including the ones needed to guide weapons to their targets, initiate the nuclear explosion, increase the weapons' explosive yield, and ensure the weapons' safety and security. DOE has three facilities—the Kansas City Plant in Missouri, the Mound Plant in Ohio, and the Pinellas Plant in Florida—that are dedicated primarily to nonnuclear activities and have unique manufacturing responsibilities. Some additional nonnuclear manufacturing activities are performed at the Rocky Flats Plant in Colorado, the Y-12 Plant in Tennessee, and the Pantex Plant in Texas. Descriptions of each plant and the activities they conduct are contained in appendix I.

In 1991, DOE began planning to reconfigure the nuclear weapons complex into one that is smaller, less diverse, and less expensive to operate. More specifically, DOE issued a reconfiguration study in January 1991 that set forth a detailed framework for making the complex smaller and more efficient. The study will lead to a complex-wide Programmatic Environmental Impact Statement (PEIS) on how best to reconfigure the complex. This statement is planned to be completed in late 1993. As part of the effort to analyze the reconfiguration, DOE's Assistant Secretary for Defense Programs directed the Albuquerque Operations Office in April 1991 to develop a nonnuclear consolidation plan to serve as input to the PEIS.

The NCP, developed over a 6-month period, concluded that the consolidation could best be achieved by terminating nonnuclear activities at the Mound, Pinellas, and Rocky Flats plants and consolidating most nonnuclear activities at the Kansas City Plant—the largest of the dedicated nonnuclear plants. Under the plan, while most nonnuclear activities would be performed at Kansas City, some activities would be privatized and procured from the private sector. Furthermore, certain activities would be transferred to other DOE facilities because of the existing capabilities of those facilities. A detailed description of the NCP's proposed nonnuclear consolidation is contained in appendix II.

According to the plan, relocating most nonnuclear activities at the Kansas City Plant would result in the lowest consolidation costs, present the least technical risk, and be completed in the shortest amount of time. This is primarily because most consolidated activities could fit into existing space and therefore new buildings would not be required. In December 1991, the

Secretary of Energy announced his decision to conduct an environmental assessment of consolidating the nonnuclear facilities with the Kansas City Plant as the preferred option. If DOE determines that there is no significant environmental impact, the agency would move forward with a 3-year program to phase out nonnuclear production at some sites by fiscal year 1995 and transfer these activities to the Kansas City Plant and other DOE sites. A draft environmental assessment was scheduled to be issued in November 1992 but is now expected to be released in February 1993.

Scope of the NCP Limited

Numerous options exist for consolidating DOE's nonnuclear sites. According to the January 1991 reconfiguration study, options ranging from downsizing and modernizing facilities in place to maximizing consolidation—in which all dedicated nonnuclear sites would be eliminated and their functions relocated to a nuclear site or national laboratory—represent a reasonable range of consolidation options. The study states that this range of options should be addressed as part of the overall reconfiguration effort. The scope of the NCP, however, was limited and did not examine all reasonable options for consolidation as specified in the reconfiguration study.

The NCP only examined alternatives for consolidating nonnuclear activities at one dedicated nonnuclear site. The plan was developed by DOE's Albuquerque Operations Office under the direction of DOE's Assistant Secretary for Defense Programs. In a memorandum requesting the NCP, the Assistant Secretary directed DOE's Albuquerque officials to examine consolidating the nonnuclear activities of the complex into a single dedicated site. According to the memorandum, this approach was consistent with the Secretary of Energy's preference to have one dedicated nonnuclear production site.

The NCP was expected to serve as only one basis for analyzing nonnuclear consolidation in the PEIS. However, DOE officials said that in light of the anticipated weapons reductions and the conclusions of the NCP, the Secretary announced plans to accelerate consolidation of nonnuclear activities at the Kansas City Plant separately from the overall reconfiguration effort in order to more quickly achieve the savings expected from consolidation.

Because DOE's study of nonnuclear reconfiguration options was limited to the single-site option, the decision to consolidate at the Kansas City Plant was made without analyzing other nonnuclear consolidation options. For

example, downsizing in place, according to DOE regional officials and contractors, would minimize technical risks because existing capabilities would be maintained. In addition, staff and overhead reductions below the levels estimated in the NCP are possible because of anticipated reductions in the nuclear weapons arsenal. However, the option of downsizing in place was not considered in the NCP analysis.

The NCP analysis also did not consider maximizing consolidation by relocating nonnuclear activities at a national laboratory or at the Savannah River Site. These facilities, particularly the laboratories, currently have some capability for producing nonnuclear weapons components. DOE officials told us this was not considered because weapons component production responsibilities would be inconsistent with the traditional functions at these sites. While this may be true from a historical perspective, it should not preclude DOE from examining this option. In this regard, one of the primary reasons for the consolidation is to eliminate overhead at various DOE facilities; consequently, maximizing consolidation—resulting in no site singularly dedicated to nonnuclear manufacturing—could eliminate the most overhead.

Although DOE Defense Programs and Albuquerque officials have not performed any detailed analysis of downsizing in place or maximizing consolidation, they believe the single-site option is the most viable. The officials said that significant savings can only be achieved by consolidating to one site and eliminating the large overhead burdens at each plant. Furthermore, they said that eliminating all dedicated nonnuclear sites would be difficult to undertake at one time because of the magnitude and the diversity of activities and technologies involved.

NCP's Analysis of Consolidation Costs Incomplete

To assess the cost of consolidation, the NCP examined the costs that would be incurred to consolidate under various single-site alternatives and determined that the Kansas City alternative would result in the lowest cost. However, the total cost of consolidation will likely be higher because the NCP did not include all costs associated with the consolidation.

The NCP assessed costs in two major areas—capital costs and operating costs—as well as the additional costs that will be incurred in privatizing selected technologies. Capital costs include the costs of constructing new or upgrading existing space, overcoming major site constraints, and purchasing new equipment. Operating costs include the costs of transferring equipment, processes, and inventory. Privatization costs are

one-time transition costs to identify, negotiate, and award contracts to qualified suppliers.

According to the plan's analysis, the option of Kansas City as the dedicated nonnuclear production site, with selected activities going to other DOE sites, would result in the lowest costs. The NCP estimated the cost for this option at \$352 million. This cost is significantly lower than the other five single-site options considered, which ranged from about \$911 million to \$1.3 billion. A summary of the NCP's cost analysis is contained in appendix III.

However, the NCP cost estimates were developed to provide a relative comparison of the various single-site alternatives; consequently, the estimates were not of budget quality and did not include all costs associated with consolidation. For example, the NCP did not account for all employee termination costs that will be incurred at facilities that will close as a result of consolidation. On the basis of NCP data, terminating all personnel will cost an additional \$47 million under the Kansas City alternative. Additionally, \$6 million will be required to hire, clear, and train additional overhead personnel. Similar increased personnel costs would also be incurred under the other five single-site consolidation alternatives.

In addition, other costs may be incurred that were not addressed in the NCP. The NCP proposes to transfer and consolidate the tritium activities conducted at the Mound and Pinellas plants with the tritium-loading activities at the Savannah River Site. These activities will be conducted in the new Replacement Tritium Facility, which is not yet operating. Once this facility is started, it will become contaminated with tritium and eventually need to be decontaminated. However, the tritium facility may not have to operate if all these tritium activities were instead located at Mound. Since the decontamination and decommissioning costs could be avoided if the activities were not transferred, the costs should be included in the consolidation analysis.

Similarly, costs associated with transferring work that is conducted for others were not included in the NCP estimates. The nonnuclear manufacturing plants do a substantial amount of work for organizations other than DOE's Office of Defense Programs, including the Department of Defense, the National Aeronautics and Space Administration, the National Security Agency, and others. Some of this work, such as manufacturing power sources for space missions and instruments for measuring

radioactivity, could require additional costs to transfer. However, the NCP did not include any costs for transferring these activities.

DOE has recognized that the NCP's cost analysis was not budget quality and has developed Conceptual Design Reports to provide budget quality data on the cost of completing consolidation under the preferred alternative. According to the reports, the capital and operating costs of the Kansas City alternative had risen to \$409 million. When the other costs of consolidation are considered, such as privatization and personnel terminations, the eventual cost may increase to over \$500 million. DOE did not develop Conceptual Design Reports for the other options, but still believes that the Kansas City alternative would be the least costly single-site option.

Inadequate Assessment of Technical Risks

The NCP states that experience has shown that transferring production activities is rarely accomplished without technical difficulties. Consequently, to assess the technical risks of consolidation, the NCP analyzed four performance measures: (1) the number of manufactured parts to transfer, (2) the number of procured parts to transfer, (3) the number of jobs that would transfer, and (4) the availability of qualified technical personnel within commuting distance of the consolidated site. Using these criteria, the NCP concluded that the Kansas City alternative would involve the least technical risk because the fewest manufactured and procured parts and employees would have to be transferred. According to DOE officials responsible for developing the NCP, these measures were used because they were quantifiable, could be obtained in the short time frame necessary to complete the plan, and were sufficient for a comparison of alternatives.

The methodology used in the NCP did not provide for any detailed assessment of the specific difficulties associated with transferring each unique manufacturing activity to another location. DOE officials told us that, in their view, developing any meaningful risk rating system, given the diversity and number of components, would be very difficult and impractical. We noted, however, that certain parts and components are inherently more complex and difficult to produce than other nonnuclear components. For example, neutron generators, which have been manufactured at the Pinellas Plant for 40 years, remain very difficult to build because they are extremely sensitive to the slightest change in materials, processing, or testing. Although the NCP notes that there is more technical risk associated with the transfer of neutron generators than of

any other activity in the complex, the analysis contained in the study assumes that the technical risk in moving this activity is the same as for moving any other manufacturing activity.

Furthermore, the NCP did not assess the technical risks associated with meeting the plan's time frames for transferring technologies, particularly limited-life components. Certain weapons parts—reservoirs, cap assemblies, and neutron generators—have a limited life and must be periodically replaced in weapons. DOE's plans would accelerate production of these components to build up a reserve, terminate production, transfer equipment and technical skills, and restart production at the new location within 2 to 3 years.

However, a June 1992 draft report conducted by a multi-site review group that evaluated problems in transferring various technologies identified the cap assembly transfer as a critical risk in meeting stockpile requirements. The review group noted that the risk could be reduced by extending the transfer time by 17 months. Pinellas Plant officials also told us the plant is having trouble meeting the time frame for moving cap assemblies. They said that they must increase the short-term work load to meet the established deadlines but that it is difficult to retain skilled staff when the plant may be closed by 1995. Similar problems were raised by Rocky Flats officials regarding the movement of reservoirs.

DOE officials told us that they continue to believe that the technical risks associated with this consolidation are not significant. They said that DOE has moved technologies before with little problem and that there do not appear to be insurmountable technical hurdles. Furthermore, they said that they will extend the schedules and keep plants open longer, should the need arise, in order to ensure that adequate supplies of limited-life components are in reserve to maintain the stockpile until new manufacturing capabilities are established.

DOE Continues to Study Various Aspects of Consolidation

Since the NCP was released in March 1992, DOE has continued to study various aspects of consolidation that could affect the preferred option as outlined in the NCP. Most importantly, DOE is (1) studying additional options for consolidating nonnuclear activities, (2) examining the movement of tritium operations from the Mound Plant, and (3) reviewing the overall size and capabilities of the future complex.

In studying additional options for consolidation, DOE is examining the consolidation of nonnuclear activities at various combinations of two sites and the movement of additional activities to DOE's national laboratories. Under the two-site option, DOE is studying two-site combinations among the Kansas City, Mound, and Pinellas plants. This was undertaken, according to a DOE memorandum, to ensure that the final nonnuclear consolidation decision is based on the most favorable combination of the criteria used in the NCP. Accordingly, the study is using the same cost methodology and technical assessment approach that was used in the NCP. The study is scheduled for release in November 1992.

DOE officials are also studying alternatives for moving selected activities, such as high-explosives operations and cap assembly production, to the national laboratories. DOE is studying these alternatives because, as a result of planned reductions in the nuclear weapons stockpile, these operations could be carried out at existing facilities at the laboratories. They believe this would reduce consolidation costs and preserve technologies during a period of little or no production. DOE officials told us that information on these alternatives will be considered as part of the final nonnuclear consolidation decision.

In addition to studying these other options, DOE is performing a comparative analysis for consolidating tritium gas transfer systems and reservoir surveillance activities at either the Mound Plant or the Savannah River Site. DOE's analysis may include the costs for the eventual decontamination and decommissioning of sites that were not included in the NCP. DOE believes this study will ensure that the final decision is adequately justified. The study is expected to be completed by DOE in November 1992.

Finally, DOE is reviewing the size and capabilities that it believes the future nuclear weapons complex must have. The original NCP analysis was based on a stabilized annual weapons production work load as envisioned in mid-1991. By the time the NCP was released, the President had announced two major reductions in the nuclear weapons stockpile—one on September 27, 1991, and the other on January 28, 1992. These initiatives, according to DOE, would reduce the production rate used in the NCP by 52 percent. DOE analyzed the impact of these reductions on the findings of the NCP and found that they did not affect the NCP's overall findings. In June 1992, the President announced an agreement with Boris Yeltsin that would further reduce nuclear weapons requirements. DOE is currently analyzing the ramifications of this agreement on the preferred alternative outlined in

the NCP. However, as of October 1992, DOE had not reached agreement with the Nuclear Weapons Council on a specific stockpile size upon which to plan the future complex.¹

Conclusions

Consolidating the nuclear weapons complex will be particularly difficult. It will involve significant costs and have important national security implications, and it will affect thousands of workers in various communities. Because of this, DOE must be assured that its decision is fully supportable. With this in mind, we noted a number of weaknesses in DOE's NCP. The NCP provides a perspective on primarily one option—consolidation at one dedicated nonnuclear site. The costs are uncertain and the technical risks of consolidation were not thoroughly examined. DOE has recognized some of these weaknesses. It is exploring additional options, such as moving specific activities to the national laboratories. It is also performing more detailed cost estimates on other options.

However, we believe that there are some weaknesses that are not being addressed. The full range of possible options and the technical risks in consolidation have not been completely explored. Further analysis of additional options and the technical risks is needed to assure the Congress and the public that all reasonable options have been explored and that DOE's approach will minimize risks. Moreover, a specific size for the complex has not yet been established. In our view, the selection of the complex's size and capabilities establishes a critical baseline for consolidation planning. Once parameters are placed on the future production capability of the complex, consolidation planning to establish that capability can go forward.

Recommendations

We recommend that the Secretary of Energy direct that ongoing efforts to analyze the consolidation of nonnuclear activities include further study of all reasonable consolidation options and additional analysis of the technical risks associated with nonnuclear consolidation. Furthermore, the Secretary of Energy should work with the Nuclear Weapons Council to establish specific sizing requirements for the complex so that it can be included in DOE's ongoing analysis.

¹The Nuclear Weapons Council is composed of representatives from the Department of Defense and DOE and makes determinations regarding the nation's nuclear weapons needs.

Views of Agency Officials

We discussed the information in this report with DOE's Principal Deputy Assistant Secretary for Defense Programs and its Associate Deputy Assistant Secretary for Weapons Complex Reconfiguration. We have included their views where appropriate. In their comments on this report, they stressed that any discussion of the NCP must recognize that the NCP represents a point in time that has been overcome by events. They said that because of the elimination of new weapons production requirements and the substantial reductions in weapons stockpile levels, DOE is continuing to analyze and change its plans for consolidating nonnuclear activities. The DOE officials stressed that a final decision has not yet been made but that the approach the agency is taking best incorporates the objectives of (1) reducing the annual operating costs of the weapons complex and (2) maintaining the ability to produce weapons components.

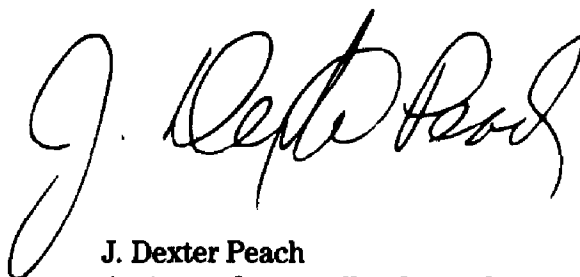
As requested, we did not obtain written agency comments from DOE on a draft of this report. However, as we were finalizing our report, four senators advised us in an October 27, 1992, letter that DOE had "significant problems" with the information contained in the report and that the agency was preparing detailed comments. To ensure the report adequately represented DOE's views on the information presented, on October 30, 1992, we requested the Secretary of Energy to provide us with any additional comments DOE may have had. DOE provided us with comments in a letter dated November 12, 1992, but virtually all of the comments and concerns in that letter had been previously discussed with DOE officials as we were finalizing the report and had already been incorporated in the report where appropriate. DOE's letter and our response are contained in appendix IV.

Our work was principally performed by meeting with and obtaining data from DOE officials from headquarters and from DOE's Albuquerque Operations Office. We also met with and obtained data from contractor officials throughout the complex, including the Kansas City, Mound, and Pinellas plants. Our work was performed from May to October 1992 in accordance with generally accepted government auditing standards. Appendix V provides an additional discussion of our scope and methodology.

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this letter. At that time, we will send copies to the appropriate congressional committees; the Secretary of Energy; and the Director,

Office of Management and Budget. We will also make copies available to others upon request.

This report was prepared under the direction of Victor S. Rezendes, Director, Energy and Science Issues, who may be reached at (202) 275-1441 if you or your staff have any questions. Major contributors to this report are listed in appendix VI.

A handwritten signature in cursive script, appearing to read "J. Dexter Peach".

J. Dexter Peach
Assistant Comptroller General

Contents

Letter	1
Appendix I Nonnuclear Facilities in DOE's Nuclear Weapons Complex	16
Appendix II Activities to Be Transferred Under NCP's Preferred Alternative for Consolidating Nonnuclear Activities	18
Appendix III NCP Estimate of Costs to Consolidate Nonnuclear Activities	19
Appendix IV Letter From the Department of Energy	20 23
Appendix V Objectives, Scope, and Methodology	25
Appendix VI Major Contributors to This Report	27

Tables

Table II.1: Activities to Be Transferred Under NCP's Preferred Alternative	18
Table III.1: NCP Estimate of Consolidation Costs	19

Abbreviations

DOE	Department of Energy
GAO	General Accounting Office
NCP	Nonnuclear Consolidation Plan
PEIS	Programmatic Environmental Impact Statement

Nonnuclear Facilities in DOE's Nuclear Weapons Complex

Six facilities in DOE's nuclear weapons complex are involved in the manufacture, procurement, and assembly of nonnuclear components for nuclear weapons. The six nonnuclear manufacturing sites are the Kansas City, Mound, Pantex, Pinellas, Rocky Flats, and Y-12 plants. The Kansas City, Mound, and Pinellas plants are almost exclusively involved in nonnuclear weapons components and are labeled as dedicated nonnuclear sites by DOE. Rocky Flats and Y-12 produce some nonnuclear components, but they play a larger role in nuclear materials production and nuclear component fabrication. The Pantex plant is involved in the assembly of all components, nuclear and nonnuclear, in the final phase of nuclear weapons production. A discussion of each plant is provided below.

Kansas City Plant

The Kansas City Plant is located in Kansas City, Missouri, and is operated by Allied-Signal, Inc. Built in 1942, the plant occupies approximately 3.2 million square feet and employs about 4,500 people. The primary mission at the plant is the manufacture, surveillance, and evaluation of nonnuclear components for nuclear weapons. The principal products include electrical, rubber, plastic, and metal components used in arming, fuzing, and firing systems. The plant also produces precision instruments and apparatus for use in the research programs of the complex.

Mound Plant

The Mound Plant is located near Dayton, Ohio, and is operated by EG&G, Inc. Plant construction began in the early 1940s; today the plant occupies about 1.4 million square feet and employs about 1,600 people. The Mound Plant's primary missions are the manufacture and evaluation of pyrotechnic components for nuclear weapons and the surveillance testing of explosives and electrical components drawn from weapons in the stockpile. These components include detonators, timers, firing sets, and actuators. Mound also recovers tritium, a crucial nuclear material, from retired weapons and ships it to DOE's Savannah River Site for recycling. In addition to its weapons complex work, Mound conducts work for other government programs. This work includes the production of power sources for space programs and of nonradioactive isotopes for commercial and medical applications.

Pinellas Plant

The Pinellas Plant is located in Clearwater, Florida, and is operated by Martin Marietta Specialty Components, Inc. Plant construction originated in 1956; today the plant occupies about 729,000 square feet and employs about 1,590 people. The plant produces neutron generators, thermoelectric

**Appendix I
Nonnuclear Facilities in DOE's Nuclear
Weapons Complex**

generators, thermal batteries, capacitors, resonators, neutron detectors, special switches, and product testers.

Rocky Flats Plant

The Rocky Flats Plant is located near Denver, Colorado, and is operated by EG&G, Inc. Rocky Flats' primary responsibility has been the processing of plutonium and the fabrication of plutonium into weapons components. In addition to these responsibilities, Rocky Flats produces tritium reservoirs, safe secure transport vehicles, and nonnuclear components from beryllium, stainless steel, and depleted uranium.

Y-12 Plant

The Y-12 Plant is located in Oak Ridge, Tennessee, and is operated by Martin Marietta Energy Systems, Inc. The Y-12 Plant's major missions are the processing of highly enriched and depleted uranium and the fabrication of uranium components. The Y-12 plant's nonnuclear activities include the assembly of lithium parts, precision machining, and specialty subassembly of structural components.

Pantex Plant

The Pantex Plant is located near Amarillo, Texas, and is operated by the Mason and Hanger-Silas Mason Company. The plant's primary mission is the final assembly of high explosives, nuclear components, and nonnuclear components into weapons. In addition, the plant fabricates high explosive components and performs weapons repair, weapons disassembly and retirement, and stockpile evaluation and testing.

Activities to Be Transferred Under NCP's Preferred Alternative for Consolidating Nonnuclear Activities

The NCP's preferred option for consolidating nonnuclear activities is for the Kansas City Plant to become the dedicated nonnuclear production site. Nonnuclear activities at the Mound, Pinellas, and Rocky Flats plants that are not privatized would be transferred under the preferred alternative. However, not all activities from these plants would be transferred to Kansas City. Some of the nonnuclear activities would be transferred to either the Savannah River Site in South Carolina, the Pantex Plant in Texas, the Sandia National Laboratories in New Mexico, or the Y-12 Plant in Tennessee. The activities to be transferred to each facility are shown below.

Table II.1: Activities to Be Transferred Under NCP's Preferred Alternative

Facilities receiving activities	Plants transferring activities		
	Mound Plant	Pinellas Plant	Rocky Flats Plant
Kansas City Plant	Flat cable products	Lithium ambient batteries	Reservoir assembly and test technology
	Mechanical assemblies and detonator safing strong links	Capacitors Encapsulated magnetics Optoelectronics assembly Frequency devices Neutron detectors Cap assembly	High energy rate forgings oversight
Pantex Plant	High-explosive powder blends Explosive timers Slapper detonators High-explosive component testing High-explosive component surveillance operations	None	None
Savannah River Site	Gas transfer systems Reservoir surveillance operations	Neutron tube loading	None
Sandia National Laboratories	None	Neutron generators	None
		Thermal batteries	
Y-12 Plant	None	None	Beryllium technology

NCP Estimate of Costs to Consolidate Nonnuclear Activities

The NCP estimates the lowest costs of consolidation would result if the Kansas City Plant is the single dedicated nonnuclear site. The capital costs for the Kansas City alternative are projected to be significantly lower largely because, unlike the other sites, the consolidated activities could fit into existing space and therefore no new facilities would need to be constructed. Similarly, operating costs associated with a consolidation at Kansas City would be the lowest because less equipment would transfer and less personnel would be relocated, hired, or terminated. Under all the alternatives, the privatization costs are estimated to involve the same activities and therefore cost the same amount.

Table III.1: NCP Estimate of Consolidation Costs

Dollars in millions				
Facility	Capital costs	Operating costs	Privatization costs	Total costs
Kansas City	\$167.6	\$109.8	\$74.5	\$351.9
Mound	573.5	307.6	74.5	955.6
Pantex	908.3	363.1	74.5	1,345.9
Pinellas	565.1	271.5	74.5	911.1
Rocky Flats	511.1	329.0	74.5	914.6
Y-12	908.3	347.0	74.5	1,329.8

Letter From the Department of Energy

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



Department of Energy
Washington, DC 20585

November 10, 1992

Mr. J. Dexter Peach
Assistant Comptroller General for
Resources, Community and Economic
Development Issues
General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Peach:

Thank you for your letter of October 30, 1992, to the Secretary of Energy regarding your review of the Department's plans to accelerate the consolidation of its nonnuclear production facilities. Since I am the senior official responsible for the nuclear weapons complex, I am responding to your request. On October 22, 1992, we were provided a facsimile copy of a summary of facts prepared by the General Accounting Office. A facsimile copy of an additional section of the report was provided on October 26, 1992. Members of my staff met with you on October 26, 1992, to discuss our detailed comments on this document.

On October 27, 1992, we were provided a facsimile copy of a revised 20-page document with Appendices I and II. Most of our comments on the revised document were provided via facsimile. A complete copy of these comments are enclosed.

I would like to further add that the Department is concerned that failure to consolidate the nonnuclear production activities in a timely manner actually represents the highest degree of technical risk to our program because of severe funding reductions and a reduced workload. Rapid consolidation will allow retention of key technical capabilities and skills and provide the synergism necessary to keep these skills current with a minimum investment.

While these do not constitute formal agency comments on your draft report, we thank you for the opportunity to provide our comments on your summary of facts.

Sincerely,

A handwritten signature in dark ink, appearing to read "Richard A. Clayton".

Richard A. Clayton
Assistant Secretary
for Defense Programs

Enclosure

Appendix IV
Letter From the Department of Energy

Enclosure

Comments on October 28, 1992, General Accounting Office Report

- See comment 1.
- Page 2 2nd Paragraph, 2nd sentence - Additional termination cost (see comment regarding page 8). \$21.1 million was estimated for termination costs for the Kansas City alternative. Due to workload reductions, not reconfiguration, the number of employees that might be affected is significantly dropping. Thus, the estimate may actually be conservatively high.
- See comment 2.
- Page 4 Top paragraph. Note: Both in the January 1991 Reconfiguration Report and the Notice of Intent (NOI) issued in February 1992, the Department of Energy (DOE) stated the preferred alternative was to seek maximum consolidation with the goal of achieving one dedicated nonnuclear site.
- See comment 3.
- Page 6 The conclusion of the top paragraph and the 2nd paragraph seem to be in conflict. In the top paragraph, the General Accounting Office (GAO) makes a point that with recent announced reductions, contractor officials state the plant operations could be reduced beyond levels analyzed in the Nonnuclear Consolidation Plan (NCP). In the 2nd paragraph, GAO recognizes that one of the primary reasons for consolidation is to eliminate overhead through plant closures.
- Now on p. 4.
- Page 6 Bottom paragraph - DOE did consider downsizing in place in a subsequent supplemental cost study.
- See comment 4.
Now on p. 5.
- Page 7 Section Heading "NCP'S ANALYSIS OF CONSOLIDATION COSTS AND SAVINGS INCOMPLETE" - The discussion of the savings has been eliminated from the draft, therefore, the heading should be corrected.
- See comment 5.
Now on p. 5.
- Page 8 2nd paragraph, 2nd sentence - "For example, the NCP did not account for the employee terminating costs that will be incurred at facilities that will close as a result of consolidation." They were included as shown on pages H-7 through H-12 in the NCP. The amount may not have been adequate for the conditions at the time, however, as a result of recent workload reductions, the termination of a large number of employees has already taken place unrelated to reconfiguration.
- See comment 6.
Now on p. 6.
- Also, we suggest adding to the last sentence of the 2nd paragraph, "therefore, the costs would not serve as a discriminator between the sites."
- See comment 7.
Now on p. 6.
- Page 8 3rd paragraph - This paragraph ignores the potential of a higher environmental risk for moving additional quantities of tritium to the Mound metropolitan area and it assumes that moving the tritium
- See comment 8.
Now on p. 6.

Appendix IV
Letter From the Department of Energy

		from the Savannah River Site to Mound is more cost effective than moving the Mound tritium to the Savannah River Site. The data being gathered in a review of the tritium move does not support this.
See comment 9. Now on p. 6.	Page 8	The D&D costs of the new Tritium facility are being evaluated in a separate study. However, on a discounted cash flow basis (present value), these costs do not appear to be significant.
See comment 10. Now on p. 7.	Page 9	2nd paragraph - This incorporates some incomplete information available to the GAO since the NCP was released, however, additional information developed by a series of Conceptual Design Reports indicates that the current preferred alignment of transferred activities will cost less than shown here.
See comment 11. Now on p. 7.	Page 10	Top paragraph - Suggest adding to the last sentence, "and were sufficient for a comparison of alternatives."
See comment 12. Now on p. 8.	Page 11	1st full paragraph - We are not sure which "June 1992 draft report" is being referenced. If the GAO is considering data other than what was available at the time the NCP was prepared, then the GAO should understand that the current family of neutron generators will be completed at Pinellas prior to phasing out of the plant. As a result, the technology transfer for neutron generators is no longer necessary. A new type of neutron generator now under development at Sandia National Laboratories will adequately protect the enduring stockpile, thereby mitigating the technical risk acknowledged in the NCP.
See comment 13. Now on p. 9.	Page 12	3rd paragraph, 2nd sentence - add the following, "to preserve the technology during a period of little or no production."
See comment 14.	Page 16	Top paragraph, 1st sentence - Today, the employment level at Mound is approximately 1,600.

The following are GAO's comments on the Department of Energy's letter dated November 10, 1992.

GAO Comments

1. DOE's comment does not take issue with our concern that DOE did not include all termination costs in the NCP. The \$47 million in termination costs cited in our report was in addition to the \$21.1 million in termination costs DOE estimated for the Kansas City alternative. DOE notes that recent events have reduced employment at the plants and will lessen personnel termination costs for the Kansas City alternative in the future. We recognize that recent events may affect termination costs at the plants; nevertheless, we still believe that all termination costs should be included in DOE's analysis.

2. Although DOE's January 1991 Reconfiguration Study infers that maximum consolidation would likely lead to one dedicated nonnuclear manufacturing site, the study specifically states that "If possible, all dedicated nonnuclear production sites would be eliminated." As a result, we believe that the statement contained in our report is correct.

3. We do not believe that pointing out two other options—reducing current plant operations in place or closing all dedicated nonnuclear plants—is contradictory. The report does not judge one option to be better than another but rather presents them as potential options which have not been examined by DOE. As stated in DOE's reconfiguration study, downsizing in place and maximum consolidation represent the range of options that should be considered.

4. The supplemental cost study does not provide a detailed analysis of downsizing in place. The supplemental study only contained a two-paragraph statement that discussed downsizing in place. This statement concluded that reducing each plant is not likely to result in substantial cost savings but did not contain any detailed analysis of this option to support its conclusion.

5. The report had already been revised to delete the reference to savings in the section heading.

6. The report had already been revised to clarify that the NCP did not consider all employee termination costs. See our response to comment 1.

7. Our intent is to illustrate problems with DOE's methodology in estimating consolidation costs. In our opinion, the report's statement that similar cost increases would be incurred under the other five single-site consolidation alternatives is sufficient to show that all options would be affected. Consequently, the additional language suggested by DOE is not necessary.

8. The report does not address the potential environmental risks of moving additional quantities of tritium to Mound because it focuses on the cost aspects of the consolidation. We recognize that there could be some environmental risks associated with such a move; however, DOE has not fully assessed these risks at this time. Further, the report does not assume that moving tritium operations to Mound is more cost effective than the Savannah River Site. We are pointing out that at the time DOE performed its study, it did not examine all costs associated with the transfer of tritium, including decontamination and decommissioning costs that could be avoided.

9. This ongoing study was already recognized in the report in the section entitled "DOE Continues to Study Various Aspects of Consolidation." Furthermore, the study is not complete at this time.

10. We revised the report to recognize that DOE officials believe that the information being developed by additional Conceptual Design Reports would reduce consolidation costs. It should be noted that these ongoing Conceptual Design Reports address a different nonnuclear configuration than the preferred alternative outlined in the NCP and are not yet complete.

11. The report had already been revised to include the suggested language.

12. The referenced June 1992 draft report is from a DOE-sponsored "activity transfer group" that is studying cap assembly technology. The report discussion relates to cap assemblies—not neutron generators as stated in DOE's letter. However, with regard to neutron generators, introduction of a new type of neutron generator currently under development may present additional technical risk. The shutdown of the current technology at the Pinellas plant would eliminate backup capacity in case the new neutron generator was not successful.

13. We revised the report to include this language.

14. The report had already been revised to recognize an employment level at the Mound Plant of about 1,600 people.

Objectives, Scope, and Methodology

GAO was requested by the Chairman, Senate Committee on Governmental Affairs, and five members of the Congress to examine DOE's plans to consolidate its nonnuclear production facilities at its Kansas City Plant in Missouri. DOE's preferred option to consolidate most of its nonnuclear activities at the Kansas City Plant is based on the results of its September 1991 Nonnuclear Consolidation Plan. As discussed with the requesters' staffs, we focused our work on examining the appropriateness of the NCP's scope, cost analysis, and technical risks.

To achieve these objectives, we met with officials responsible for the development of the NCP in DOE's headquarters Office of Weapons Complex Reconfiguration and its Albuquerque Operations Office. We discussed these officials' perspectives on the reasons for accelerating the consolidation of nonnuclear activities and the benefits to be obtained. From these officials we obtained and reviewed the September 1991 Nonnuclear Consolidation Plan and the data provided by the nonnuclear plants that were used to develop the plan. We discussed with the DOE officials how the plant-supplied data were compiled, modified, and analyzed to arrive at the conclusions and recommendations contained in the NCP. We also discussed the methodology used to develop the plan and the reasons for following this methodology.

In addition, we obtained and reviewed documents related to DOE's overall modernization plans. These include the December 1988 United States Department of Energy Nuclear Weapons Complex Modernization Report, the January 1991 Phase I Report of the Privatization Planning Panel, and the January 1991 Nuclear Weapons Complex Reconfiguration Study. We also obtained and reviewed data related to the nonnuclear consolidation that were developed after the issuance of the NCP. These include the April 1992 Supplemental Cost Study for Nonnuclear Consolidation and the five Conceptual Design Reports developed to provide budget quality cost estimates of achieving consolidation under the Kansas City alternative.

Further, we visited and discussed nonnuclear consolidation with officials at the nonnuclear facilities significantly affected by nonnuclear consolidation—the Kansas City Plant in Missouri, the Mound Plant in Ohio, the Pinellas Plant in Florida, and the Rocky Flats Plant in Colorado. At each site, we discussed with contractor and DOE site officials the process used to develop the NCP, the appropriateness of the cost estimates contained in the plans, and the technical risks associated with this activity. We also met with officials at Sandia National Laboratories in Albuquerque, New Mexico, to discuss their role in receiving nonnuclear manufacturing

**Appendix V
Objectives, Scope, and Methodology**

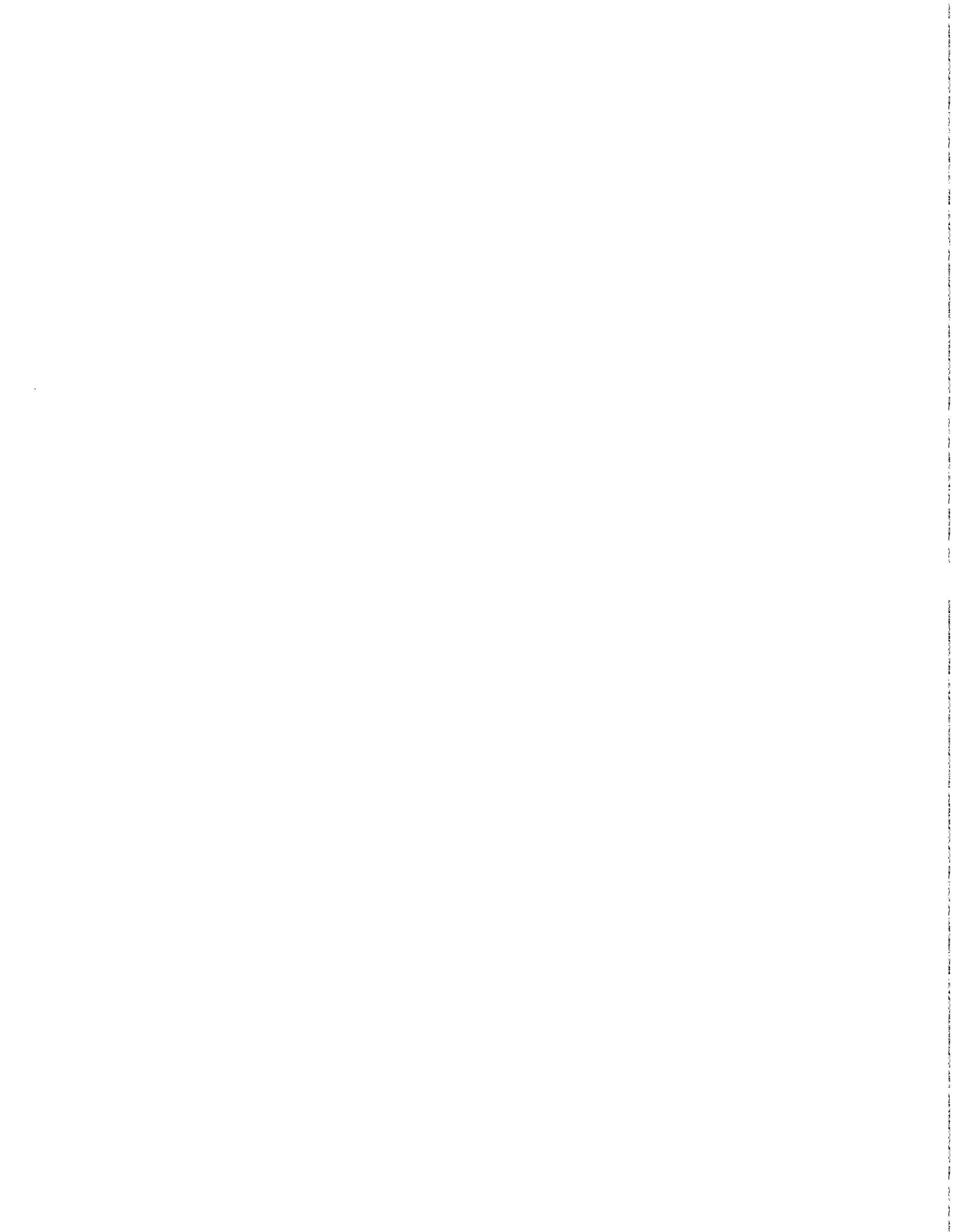
activities. Further, we discussed nonnuclear consolidation issues with officials from DOE's Office of Production Facilities, which has oversight responsibility for these plants, and with officials from the Office of Facility Transitions in the Office of Environmental Restoration and Waste Management, which will be responsible for facilities that are closed as a result of the consolidation.

This work was performed between May and October 1992 in accordance with generally accepted government auditing standards.

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