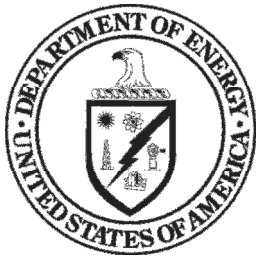

U.S. Department of Energy
Office of Inspector General
Office of Audit Services

Audit Report

The National Nuclear Security Administration's Management of the Product Realization Integrated Digital Enterprise Program

DOE/IG-0836

July 2010

Department of Energy
Washington, DC 20585

July 22, 2010

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman
Inspector General

SUBJECT: INFORMATION: Audit Report on "The National Nuclear Security Administration's Management of the Product Realization Integrated Digital Enterprise Program"

BACKGROUND

The National Nuclear Security Administration (NNSA), in partnership with the Department of Defense, maintains the Nation's arsenal of nuclear weapons through a geographically dispersed Nuclear Weapons Complex (Complex). In support of this mission, NNSA relies upon numerous and disparate site-specific and cross-Complex information systems to help manage the nuclear weapon product life-cycle process. NNSA, in its own planning documents, has noted that since Fiscal Year (FY) 2000, it had devoted considerable resources to these systems, acknowledging that their operation and management costs were not always well defined nor completely understood.

To respond effectively to changing requirements, and, share and exchange weapon product information among sites, NNSA established its Product Realization Integrated Digital Enterprise (PRIDE) Program in FY 2007. PRIDE was established to develop and deploy a modernized, integrated suite of enhanced information technology (IT) capabilities to securely deliver weapon product life-cycle information to users across sites. NNSA anticipated that PRIDE would result in a reduction in weapon development cycle times and associated expenses. By the second year of the program, PRIDE consisted of over 100 sub-projects. NNSA originally planned to complete development activities within the PRIDE program by the end of FY 2014 at a projected total cost of approximately $83 million. Given the importance and significant cost of the PRIDE initiative, we conducted this audit to determine whether development had been managed in a manner that would permit the system to achieve its intended goals and objectives.

RESULTS OF AUDIT

Our audit revealed that PRIDE had not been well-planned and adequately managed as an IT investment. In particular, program officials had not always applied sound capital planning and investment control practices as required for an effort of this magnitude and complexity. Symptomatic of these weaknesses, two years into the initiative the original schedule had slipped by at least a year and overall developmental costs were expected to exceed original projections by about $16 million, or nearly 20 percent of the base estimate. Specifically, we found that program officials:

- Did not implement the Department's structured capital planning and investment control process for planning, selecting, funding, controlling and evaluating information technology investments; and,

- Had not applied effective oversight controls that would enable responsible Federal managers to monitor the program's progress against baseline costs and schedule, performance and expected benefits.

These weaknesses occurred primarily due to inadequate management guidance and direction, and ineffective program monitoring. PRIDE's primary goal was to develop and deploy an integrated suite of enhanced IT capabilities in support of the transformation and modernization of the Complex. Instead of managing PRIDE as an IT investment or capital asset to ensure that its overall goals were achieved, program officials elected to treat each of the individual sub-projects as separate and independent efforts. Thus, multiple sub-projects with a common focus and design were not grouped together for ease of project management; and, subordinate program officials and project managers were not directed to follow the project management and IT capital asset planning principles as required by both OMB and the Department of Energy.

Widespread concerns have been expressed that many government IT projects cost hundreds of millions of dollars more than planned, take years longer than necessary to deploy, fail to produce expected benefits and that they deliver technologies that are obsolete by the time they are completed because of poor management. To address these problems, OMB issued Memorandum 10-25, *Reforming the Federal Government's Efforts to Manage Information Technology Projects*, which included plans to develop higher standards for project management practices and personnel, additional mechanisms for holding managers accountable for project results and more rigorous review processes. Additionally, OMB Memorandum 10-27, *Information Technology Investment Baseline Management Policy*, which, among other things, provided direction on establishing IT investment baseline management, measuring performance, identifying accountability, describing the implementation approach and interdependencies, identifying key decisions and embedding quality assurance and reviews.

We could not definitively determine the impact over time of the challenges facing the PRIDE effort. This was primarily due to the limited availability of scheduling and project cost data. However, it became clear that even in just the first two years of the program, PRIDE's development activities had already been extended an additional year, to FY 2015, and that development costs are expected to increase by about $16 million. As currently managed, there is a significant risk of further delays and cost increases. Delays completing PRIDE and in deploying these IT resources directly impacts NNSA's ability to accomplish the Complex transformation vision. In our view, these risks can be effectively managed if NNSA applies sound IT capital asset planning and robust front-end baseline, schedule, and performance planning.

Accordingly, we have made recommendations, which if fully implemented, should: (i) help increase the likelihood of accomplishing and sustaining PRIDE's long-term goals, as well as supporting other NNSA initiatives relying on this effort; (ii) assist the Department in its general efforts to improve contract and project administration; and, (iii) advance the President's

commitment to promote transparency and accountability by fully disclosing Federal IT spending. Our review was limited to an assessment of the program's management controls, and would not necessarily have identified issues related to the technical aspects of the Program's activities.

MANAGEMENT REACTION

NNSA management generally concurred with our recommendations and stated its intention to initiate corrective actions to address the recommendations. These actions, if fully implemented, should increase the likelihood of accomplishing and sustaining the long-term goals of PRIDE on schedule and within budget. However, in an extensive set of comments, management took exception to the audit conclusions in a number of areas. Management's comments and our rebuttal are important elements of this audit and should be carefully considered. They are more fully discussed in the body of this report and are included in Appendix 3.

Attachment

cc: Deputy Secretary
Administrator, National Nuclear Security Administration
Chief of Staff
Chief Information Officer
Chief Information Officer, NNSA

REPORT ON THE NATIONAL NUCLEAR SECURITY ADMINISTRATION'S MANAGEMENT OF THE PRODUCT REALIZATION INTEGRATED DIGITAL ENTERPRISE PROGRAM

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Information Technology Investment

Although the Product Realization Integrated Digital Enterprise (PRIDE) Program made positive strides in its first two years, the effort had not been planned and executed as an information technology (IT) investment to help ensure it achieved its intended goals and objectives in a cost effective and timely manner. Specifically, we found issues with the application of capital planning practices, baseline management controls, and oversight of the program and its portfolio of projects.

System Development Background

PRIDE, which is primarily an IT program in support of the National Nuclear Security Administration's (NNSA) enterprise-wide integration, uses technology as the key element to achieving program goals and objectives. To its credit, NNSA recognized the increased need to expedite responsiveness, and share and exchange weapon product life-cycle information across the Nuclear Weapons Complex (Complex or NWC). NNSA officials realized that no information system existed that could support weapon systems data intricacies and needed integration capabilities. Accordingly, it had taken steps to develop and deploy an integrated solution that securely delivers data and enhanced capabilities to users by consolidating and modernizing site-based weapon product applications/systems. It is envisioned that PRIDE will develop enhanced IT capabilities and assume support for existing information systems as part of its scope, ultimately resulting in reduced time and costs for managing the weapon product life-cycle.

In Fiscal Year (FY) 2007, the NNSA Nuclear Weapons Stockpile Division established funding and appointed a program management team to manage and oversee the PRIDE portfolio to integrate systems for managing the weapon product life-cycle. An extensive set of high level project management documentation was prepared to guide the development effort. During initial planning, over 120 applications/systems were identified for characterization and potential consolidation. As approved in FY 2008, development activities within the PRIDE program would establish a fully integrated and interdependent "system of systems" by the end of FY 2014 at a cost of approximately $83 million.

Capital Planning and Investment Control

Although PRIDE was in its third year of development, NNSA lacked a structured process to plan, select, fund, control and

evaluate the PRIDE IT investment or its portfolio of projects. Although PRIDE program officials had developed extensive documentation to guide the development efforts, they had not fully incorporated capital planning requirements into the initial planning or definition efforts of PRIDE. PRIDE's development activities were aggregately funded at $15 million in FY 2009 and were projected to total $115 million from FYs 2008-2015. We identified at least five enterprise-wide sub-projects that ranged in cost from $5 million to $20 million over the program's life. However, a Capital Asset Plan had not been prepared for the PRIDE investment and only 5 of 110 projects, accounting for less than $4 million of the $32 million FY 2011 investment costs, could be clearly identified in the Department of Energy's (Department) IT Investment Portfolio – part of its annual budget submission.

Both the Office of Management and Budget (OMB) and the Department require a Capital Asset Plan and Business Case (Exhibit 300) be prepared for all major IT investments. In addition, both major and non-major IT investments must be reported in the Department's IT Portfolio (Exhibit 53). The Federal Chief Information Officers Council and OMB clarified that IT investments can be made up of one or more IT projects and consist of efforts that typically require more rigor and structure to maximize their value. OMB and the Department have defined major IT investments, including large infrastructure investments, as those that meet any of the following factors, each of which are applicable to PRIDE:

- Total IT project costs of $5 million or more;
- Any IT investment with cumulative steady state or mixed life-cycle funding of $5 million or more during the prior, current, and budget year;
- Any IT investment requiring special management attention because of its importance to the agency mission;
- Any IT project with high development, operating, or maintenance costs; high risk; or high return; and,
- Any IT investment that plays a significant role in the administration of agency programs, finances, property, or other resources.

Effective capital planning requires robust front-end and long-range planning and a disciplined budget decision-making process as the basis to achieve performance goals and objectives with minimal risk, lowest life-cycle costs, and greatest benefit. Through preparation of the Exhibit 300, the OMB requires agencies to fully address such issues as investment business case, performance baselines, costs and schedule variances, IT security reporting, agency modernization efforts, overall project (investment) management, and compliance with Federal statutes such as the Clinger Cohen Act of 1996. Furthermore, the Exhibit 300 provides critical information to OMB on major IT investments for reporting to Congress and helps ensure the business case for IT investments are aligned to the Department's mission, long-term strategic goals and objectives, and annual performance plans.

Program Controls

In addition to financial and budgetary controls, PRIDE officials did not incorporate required oversight controls and best practices such as cost and schedule baselines into the management structure of the program to ensure that projected costs, benefits, and performance were properly documented and tracked. Officials were unable to provide us with detailed project-level baseline information, since it had not been captured, tracked, or reported at either the program or sub-project levels. In addition, while certain sites submitted status reports about their respective projects, the reports did not contain crucial information necessary to monitor progress and performance. Specifically, NNSA received quarterly reports and held quarterly program reviews which served to provide updates on various PRIDE project costs, risks, accomplishments, and milestones, as well as evaluate priorities. However, reports were not received for all of the ongoing projects and the data did not provide a means to identify potential increases in costs or impacts to schedule or scope because the original baseline data was not retained. Since comprehensive information was not collected or tracked, senior management was not provided with all necessary information that would have enabled it to make informed decisions regarding progress/investment viability.

Officials also did not require a formal performance baseline or cost/benefit analysis be developed and maintained with any degree of certainty. For instance, in comparing available

information on PRIDE's initial FY 2008-2014 program data to revised FY 2009-2015 data, estimated amounts for development activities varied from 13-44 percent annually. The Department requires that all project baseline changes in excess of the lesser of $25 million or 25 percent of the original baseline, or project delays of six months or greater from the original completion date, must receive executive approval. However, PRIDE officials were unable to provide us with documented or approved justifications for the large variances from the initial estimates. Furthermore, although we obtained quarterly status reports, annual implementation plans, and funding documents, we were unable to reconcile them to a complete listing of individual projects or subtasks. Therefore, we were unable to rely on individual funding amounts or to draw conclusive results about PRIDE's performance.

In addition, we noted that officials split single projects that occurred at multiple sites into multiple projects, thus funding and managing the same project at each site individually. For example, we identified 68 individually-funded development projects in PRIDE's 2009 work breakdown structure. However, 31 of these projects, ranging in cost from $5 million to $20 million, actually consisted of 5 key projects that were broken down among multiple sites, including:

- A system for digital design and modeling of weapon products,
- An application to standardize product structure,
- A system to establish change management and document control of product data throughout the life-cycle,
- A database containing high-value, at-risk historical product data, and,
- A system that performs analyses needed for annual stockpile performance assessment.

This practice overstated the number of active projects and understated their costs, thereby placing them below the threshold that required officials to apply capital planning requirements or implement pertinent baseline management controls to effectively monitor the program's progress against projected costs, schedule, performance, and expected benefits.

Management Practices

NNSA did not apply strong IT capital planning and investment controls over the PRIDE Program due to inadequate management guidance and direction. In addition, the PRIDE Program lacked effective management oversight to ensure that effective controls, such as cost and schedule baselines, were in place for properly documenting and tracking program costs, benefits and performance.

Guidance and Direction

NNSA management did not ensure that PRIDE followed Federally-mandated project management directives and IT capital planning requirements and best practices. Instead of managing PRIDE as an investment or capital asset for developing an integrated suite of enhanced IT capabilities, officials elected to treat each sub-project within the investment as a distinct and isolated effort. Program officials did not require an overall project execution plan in order to properly identify, document and manage the entire program's expected costs and schedule, but instead relied on numerous project implementation plans within the portfolio. This approach obscured the overall progress of PRIDE, which is vital information for executive management and for NNSA initiatives affected by or relying on this program.

The NNSA Office of the Chief Information Officer and PRIDE officials stated that they believed that only projects, not programs, per se, were required to adhere to capital planning and/or project management requirements. Furthermore, they believed the individual projects were not subject to the requirements, since none of the 110 sub-projects individually met the $5 million and $20 million thresholds for capital planning and project management, respectively. However, we noted that both the Federal Chief Information Officers Council and OMB clarified that an IT investment can be made up of one or more IT projects. PRIDE, while comprised of numerous sub-projects, has a unified goal of consolidating, integrating and enhancing numerous disparate systems/applications to create an integrated suite of enhanced systems for managing the weapon product life-cycle and, therefore, should have been managed as such. Furthermore, the PRIDE portfolio of projects was budgeted at $115 million in development costs alone, well over the threshold for a major IT investment, thus requiring more rigor and structure to properly manage the program and maximize its value.

Monitoring and Control

In addition, NNSA management did not provide effective, comprehensive monitoring and control of the cost and schedule aspects of the PRIDE Program. Oversight and decision making responsibility was delegated to a program management team comprised of contractor representatives from various NNSA sites. As such, this team lacked authority to provide direction and to review the work performed by other sites to ensure that the overall IT investment and its sub-projects' baselines and schedules were adequately managed and achieving the program's cost and performance goals. A management official in NNSA Headquarters acknowledged that those selecting suitable projects and overseeing PRIDE's progress did not have the authority to direct other participants. Instead, the 110 sub-projects active during FY 2009 were being managed and executed independently among 8 sites across the Complex. Consequently, there was inadequate verification of cost and performance reporting by the PRIDE Program Office and individual lead sites. We noted that, due to the lack of authority, none of the managers for the sub-projects we reviewed had verified costs submitted by other sites, making it difficult to ensure that the various sub-projects that comprise PRIDE were actually achieving their cost and performance objectives.

Opportunities for Improvement

As a result of inadequate management guidance and direction for applying strong IT capital planning and investment controls, within just the first two years of the initiative, the completion date of PRIDE's development efforts had been extended an additional year to FY 2015, with a projected cost increase of about $16 million. Without improvement in program management direction to address the weaknesses we observed, PRIDE is at risk of further delays, increased costs and lost operating efficiencies and may not fully satisfy its intended goals and objectives. Delays in deploying these resources directly impact NNSA's ability to accomplish the complex transformation vision.

Furthermore, the lack of a rigorous capital planning and investment control process and the inability to effectively monitor and verify project costs deprived OMB and Department executives, as well as other key stakeholders, the opportunity to evaluate PRIDE's performance and make

informed decisions based on any cost and schedule variances. Implementing a comprehensive process helps ensure that the investments are included in the agency's IT portfolio, the budget is justified, and management support is garnered. In an era of ever tighter funding constraints, PRIDE's success depends largely upon sustaining adequate funding levels and maintaining senior management's commitment.

RECOMMENDATIONS

To help ensure PRIDE is effectively managed and that stakeholders can maintain cognizance over the program, we recommend that the Administrator, NNSA, direct the NNSA Chief Information Officer and PRIDE officials to:

1. Prepare and submit required IT capital plans for funding, controlling and evaluating the PRIDE investment, to include preparation of a business case and fully capturing the costs of PRIDE in the Department's IT investment portfolio; and,

2. Implement effective baseline and schedule management controls over PRIDE through comprehensive oversight of the program and its portfolio of projects to satisfy Federal and Departmental requirements, to include:

    - Establishing and maintaining accurate project baselines;

    - Identifying, documenting and verifying estimated and actual project costs and performance; and,

    - Ensuring that Federal managers of multi-site projects have the necessary authority to direct and oversee work performed at other sites.

MANAGEMENT AND AUDITOR COMMENTS

Although NNSA generally agreed with the report and concurred with the recommendations, management expressed concern with our portrayal of the PRIDE Program and questioned the accuracy of certain portions of the report. Management stated its intention to initiate corrective actions to address the recommendations, which if fully implemented, should increase the likelihood of accomplishing and sustaining the long-term goals of PRIDE on schedule and within budget. We have summarized management's comments and provided individual responses for each comment.

Investment Status

Management commented that it had applied a consistent and documented set of controls over the PRIDE Program's life-cycle, but did not follow the Capital Planning and Investment Control (CPIC) process. It explained this was because the program is neither an IT capital acquisition nor is it delivering an integrated single solution, but is instead a series of projects operating under program guidance for the NNSA Defense Programs.

While we do not refer to PRIDE in the report as an IT capital acquisition, the program does meet the criteria of an IT investment and capital asset as set forth by OMB. Specifically, the Federal Chief Information Officers Council and OMB clarified that an IT investment can be made up of one or more IT projects and accordingly requires more rigor and structure to maximize its value. In addition to acquisition principles, the CPIC process also includes the planning and budgeting, management and disposition of capital assets to ensure that these investments successfully contribute to achieving the Department's strategic goals and objectives. According to OMB Circular A-11, Part 7, capital assets include, among other things, IT hardware and software as well as weapon systems that are used by or on behalf of the Federal government. Capital assets include not only the assets as initially acquired but also additions, improvements, modifications, replacements and rearrangements and reinstallations. Finally, as noted in our report, major IT investment/acquisitions are capital assets that require special management attention because of their importance to the agency mission; high development, operating, or maintenance costs; high risk; high return; or, their significant role in the administration of agency programs, finances, property or other resources. We determined that PRIDE satisfied a number of these factors, and, therefore, should have adhered to the CPIC process and should have been separately identified in the Department's budget.

Information Technology

Management stated that the PRIDE Program established and managed an integrated digital environment of optimized electronic information management systems (EIMS) that securely delivered weapons design and production information to all site-based users across the Nuclear Security Enterprise (NSE). In addition, 80 percent of PRIDE funding was directed

to mission operations and maintenance while other funding elements were directed to "architecting" activities that would intentionally not result in an IT solution being delivered. As such, management stated that PRIDE is not developing an IT system and is not an IT system. Thus, PRIDE is neither a capital asset, per se, nor a development program. Further, management stated its belief that the Office of Inspector General (OIG) may have misunderstood the term "development cost" as it relates to PRIDE. Management also noted that PRIDE is a capabilities improvement program driven by mission business requirements including the need for digital models-based capabilities. According to management, the PRIDE integrated and interdependent "system of systems" represents the NNSA vision of a future Integrated Digital Enterprise that has no end. NNSA management believed all references to IT in this report should be replaced with "product realization."

Although we performed an extensive review of documentation provided by the PRIDE Federal Program Manager, we were unable to substantiate that 80 percent of the PRIDE Program was allocated to operations and maintenance (O&M) activities, with the remaining funds directed to program management. Rather, we found, after the first year, the majority of funding was directly related to activities such as "develop & deploy electronic information management systems" or "consolidate, transform, and enhance." According to the information provided for FYs 2008, 2009 and 2010, the amounts allocated to O&M decreased and were 50 percent, 40 percent and 43 percent, respectively. Conversely, the amounts allocated during the same time to development increased and represented 37 percent, 49 percent and 46 percent of total funding, respectively. With such large allocations devoted to the development, consolidation, transformation and/or enhancement of EIMS, we continue to believe that PRIDE should be diligently planned, programmed and managed as an IT investment/capital asset.

In addition, we disagree with management's comment regarding our categorization of PRIDE as a system. PRIDE was not portrayed as a single system under development in the report. Rather we acknowledged that it is a program comprised of a portfolio of interdependent projects, the result of which is to develop and deploy a suite of integrated systems across the NWC. While we agree with management's description of the PRIDE Program, we disagree that all references to IT within

the report should be replaced. Specifically, we noted that the Program Plan stated that PRIDE "enables the creation of a fully integrated and interdependent NWC by providing enterprise information systems…" We feel that the terms "electronic information management system(s)" and "enterprise information systems" are analogous to "information technology." We also noted that the PRIDE Governance Manual stated that "the PRIDE Program is primarily an IT program in support of Complex-wide core mission integration. As such, technology is the key element of the program. The program will be both developing new technology approaches and assuming support for existing implementations as part of its scope." In fact, we found that within only two of the six PRIDE core management documents (Volume I – Program Plan and Volume IV – Governance Manual), the terms "information technology" or "IT" were used 30 and 25 times, respectively.

To clarify our position that the management weaknesses we identified pertained to NNSA's failure to manage PRIDE as an IT investment, we modified the report where appropriate.

Program Costs

Management refuted the determination made in the report that the program is over budget and schedule, indicating a lack of control. Management explained that PRIDE's first year program plan was based on NNSA's Programming, Planning, Budgeting and Evaluation (PPBE) process which required a multi-year time horizon for planning and budgeting for all activities. This plan is then updated annually to reflect program performance and enacted appropriations. According to management, the PRIDE Program Management Team planned and budgeted over 100 projects and then updated and realigned PRIDE applications at the beginning of each fiscal year. In addition, PRIDE is not a subprogram or budget structure element in the budget, it is not discrete in the accounting system, nor is it an operating-expense funded project with a datasheet. PRIDE is an activity like many others conducted at a number of sites that is within the $2 billion DSW activities. It has plans and milestones and budget estimates within this subprogram, although it does not have a discrete funding request or published baseline as a line item project would have.

We noted that the PPBE process, as referenced by management, was consistent with capital programming investment controls to include a valid and structured life-cycle management approach derived from credible baselines that consider past events, present resources, and future needs. However, regardless of the interpretation of NNSA's internal policy, OMB dictated the development of a sound performance baseline for assessing program/project/investment progress and/or deviations. The development of a "multi-year time horizon" does not negate the need and requirement for determining an initial performance baseline to define objectives, formalize commitments, establish funding, authorize changes and communicate progress for a program of this magnitude. We agree that annual updates to project baselines are permissible with sufficient justification and adequate approval. However, when requested during the audit, management was unable to provide documented justifications for the wide variances identified from year to year in major areas (such as O&M and development activities) and/or from project to project that were obtained from the program documentation. While we agree that PRIDE had plans and milestones and budget estimates, we found that these were not clear, concise, meaningful, and measurable performance baselines that could be used to conduct credible reviews through which results could be compared against these baselines. As currently planned and programmed, PRIDE does not maintain an initial starting point (baseline) from which to measure program performance.

Management's comment refutes that there is a defined cost estimate or schedule for completion. While not all inclusive, we consider similar terms (e.g. development, modernization, enhancement, consolidation, transform, additions, improvements, modifications, replacements, rearrangements and reinstallations) to indicate development-type activities that are undertaken to achieve a fully realized and operational integrated digital enterprise; the development of which will eventually cease and enter an operations and maintenance phase. According to the initial program plan, the goal was to establish a Complex-wide digital Product Lifecycle Management System by the end of FY 2014. However, in later versions (FYs 2009 and 2010) the completion date was noted as being by the end of FY 2015. As a result, we concluded that the program's development activities had increased in cost and had been extended by one year, as noted in our report. To

distinguish between development costs rather than overall program expenditures, we modified the report where appropriate.

Regarding management's comment that PRIDE is an activity like many others conducted at a number of sites, we consider a major distinction between PRIDE and other activities to be the level of complexity involved in the consolidation and modernization of numerous and disparate site-based weapon product data systems into an Enterprise-wide integrated solution. We further noted that management refers to PRIDE as both a 'program' and 'activity' throughout its comments. Therefore, we concluded that these terms were being used interchangeably and that the choice of one over another should not downplay the actual size or overall complexity of the program as a whole.

Program Management

Management noted that the PRIDE Federal Program Manager (FPM) and the Program Management Team (PMT) continuously directed and managed the PRIDE portfolio of investments using predetermined and agreed-upon investment management strategies, practices, principles and governance which were reflected in an extensive set of core management documentation and processes. These documents are updated regularly and form the core of the documentation of PRIDE's management processes and budgetary oversight at the program level, including a baseline ("as is" state) for all projects (PRIDE applications) that are improvement activities. While these documents were provided to the auditors, they are not referenced in the draft report, which states that the project "had not applied effective oversight controls."

In addition, management stated that detailed program reviews are held quarterly and site-based performance evidence documentation is extensive and its contents exhaustive. Since the program's inception, all PRIDE final decisions reside with the FPM. The PRIDE PMT comprised of contractor representatives from various NNSA sites, makes recommendations and presents options for NNSA approval. PRIDE has followed NNSA DSW requirements for program management, as directed by the FPM. The PMT has quarterly reporting for all projects and access to detailed site-based reporting. NNSA has had and currently has available, all PRIDE reports, site-based evidence documentation, project

plans, project baselines and other artifacts. The Inspector General committed to meet with the NNSA FPM prior to the release of the draft report, but unfortunately this meeting did not occur.

While we agree that the FPM and contractor-led PMT work closely together, we found that clear, concise, meaningful and measurable performance baselines which could be used to conduct credible program- or project-level reviews were never established. When the audit team requested this type of information, we were told that the cost, schedule and technical scope had been documented for strategic purposes only – not to measure the program's progress. Additionally, we were told that there was no principal source from which to pull a comprehensive inventory of the portfolio of projects. In addition, as previously discussed, we noted that funding levels and projects changed over time without documented justifications and/or approvals from which to base a valid rationale for the reprogramming of resources. Due to the complexity of the PRIDE program and the number of contractor-led sites involved, we would expect to see a Federal management structure that closely monitored the progress of the program's strategic goals and objectives.

We acknowledge that the follow up meeting mentioned by management did not occur. However, this was because the audit team (consisting of the Auditor-in-Charge, Team Leader, Division Director, and Deputy Inspector General for Audit Services) had met with PRIDE program officials previously to discuss various aspects of the program; including its classification and the need for Federal oversight, and were under the impression that a general consensus had been reached. In addition, prior to this, the Auditor-in-Charge, Team Leader, and Division Director had met with PRIDE officials extensively to discuss the same topics.

During these meetings, the FPM explained that the program was operated under the Government-Owned, Contractor-Operated model and that the contractors were paid to perform and manage their work. The FPM further stated that the contractors did not warrant a high degree of oversight. We feel that the importance of program oversight was highlighted when officials were unable to account for the amounts spent to date or reprogrammed from one activity to another within and among contractor-operated sites. In fact, officials stated that the $30 million plus annual budget needed to run the program

was a strategic number rather than a realistic budget. Officials further stated that the audit team could not rely on the work-breakdown-structure as it was strictly strategic in nature as opposed to a tool used to manage the program or its portfolio of interrelated projects. We were referred to the core documents for specifics, particularly the Program Plan and Governance Manual, which we used extensively in arriving at the conclusions reached within the report.

Upon review of three years worth of the core management documentation and processes (a six volume set), we integrated a significant amount of this information throughout the preliminary and draft reports. However, as noted above, much of the information we derived from these documents, such as the intensity of Federal oversight, initial cost and schedule baseline, whether the program included IT, or was involved in information system development activities, has since been refuted or contradicted by the program team.

To acknowledge the project documentation that NNSA developed and to clarify our position, we modified the report where appropriate. Finally, NNSA provided a number of technical comments, which were incorporated into the report where applicable.

Appendix 1

OBJECTIVE

To determine if the National Nuclear Security Administration's (NNSA) Product Realization Integrated Digital Enterprise (PRIDE) Program was adequately managed in a manner to achieve its intended goals and objectives.

SCOPE

The audit was performed between September 2008 and March 2010 at Department of Energy (Department) and NNSA Headquarters, Washington, DC; Sandia and Los Alamos National Laboratories, New Mexico; and, the Y-12 National Security Complex in Tennessee.

METHODOLOGY

To accomplish our objective, we:

- Reviewed Federal and Department directives pertaining to program and project management, and information technology (IT) capital planning and investment control activities;

- Reviewed applicable standards and guidance issued by the Office of Management and Budget (OMB) for the management of major IT investments, such as OMB Memorandum 10-25, *Reforming the Federal Government's Efforts to Manage Information Technology Projects*, and OMB Memorandum 10-27, *Information Technology Investment Baseline Management Policy*;

- Obtained and analyzed documentation from NNSA pertaining to the planning, design and implementation of PRIDE and its portfolio of projects, such as Volume 1 – PRIDE Program Plan, Volume 2 – PRIDE Budget, Volume 3 – PRIDE Information Systems Catalog, Volume 4 – PRIDE Governance Manual, Volume 5 – PRIDE Project Scoping Documents, and Volume 6 – PRIDE Business Implementation Strategy for Fiscal Years 2008-2010;

- Held discussions with officials from the Department and NNSA; and,

- Reviewed prior reports by the Office of Inspector General and the Government Accountability Office.

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 objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Accordingly, we assessed significant internal controls and NNSA's implementation of the *Government Performance and Results Act of 1993* and determined that it had established performance measures for information technology program and project management. Because our evaluation was limited, it would not have necessarily disclosed all internal control deficiencies that may have existed at the time of our evaluation. We did not rely on computer-processed data to satisfy our objectives.

Management waived an exit conference.

RELATED REPORTS

Office of Inspector General Reports

- *The Management of the National Nuclear Security Administration's Classified Enterprise Secure Network Project* (DOE/IG-0823, September 2009). The audit team found that neither the planning for nor execution of the Enterprise Secure Network (ESN) project had been effective; thus leading to a system which was not completed on time, within budget or scope. ESN was not operational until three-years after its planned completion date, incurred a cost overrun of $37 million, and did not provide sufficient capacity for certain supercomputer and other classified systems' traffic as planned. These issues were attributable, in large part, to problems with planning and management of the ESN effort, including a lack of project management controls and protections required for efforts anticipated to cost more than $20 million. This deprived senior National Nuclear Security Administration (NNSA) management officials of crucial information necessary to ensure that the initiative was properly planned and executed, and that project costs were properly tracked. Because of the project delays, certain interdependent NNSA initiatives, including ongoing efforts to standardize and consolidate weapons data and enforce need-to-know access across the Nuclear Weapons Complex, had been adversely impacted.

- *Management Challenges at the Department of Energy* (DOE/IG-0808, December 2008). Based on results from prior and current reviews, emerging issues, and actions taken by the Department of Energy (Department), the Office of Inspector General (OIG) identified contract administration including project management, cyber security, safeguards and security, and stockpile stewardship as four of the six most significant challenges facing management. While contract management remains on the list, credit is given to the Department for steps taken to mitigate impediments to complete projects on cost and schedule. Cyber security, a component of the Department's overall security posture, is crucial because threats to information systems infrastructure have become more frequent and more sophisticated. Safeguards and security is vital to ensuring the Nation's nuclear weapons are safe and secure through effective implementation of protective controls. Practices related to the cost and scheduling of stockpile stewardship activities are critical for ensuring the essential deterrence role is served.

- *Follow-up Audit on the Resolution of Significant Finding Investigation Recommendations* (DOE/IG-0804, November 2008). In response to the prior audit, *Resolution of Significant Finding Investigation Recommendations* (DOE/IG-0575, November 2002), NNSA agreed to implement a Significant Finding Investigation (SFI) corrective action tracking database and establish performance measures to resolve corrective actions by December 2003. This audit revealed that NNSA had not effectively monitored contractor efforts to develop and implement a database necessary to track the status of SFI corrective actions because it was a low priority due to declining budgets. NNSA officials acknowledged that an SFI corrective action database should have been completed and functional. Failure to routinely track and resolve numerous SFI recommendations has the potential to undermine the credibility of the Department's analytically-based Stockpile

Surveillance Program testing regime. Several years later and in response to this follow-up audit, NNSA initiated action to develop a tracking system for all SFI recommendations through the development of Product Realization Integrated Digital Enterprise.

- *Development and Implementation of the Department's Enterprise Architecture* (DOE/IG-0686, April 2005). The Department had not fully defined its current or future information technology (IT) requirements, essential elements if an architecture is to be an effective tool in managing IT investments. Additionally, the Department did not ensure that program office architectures were complete, were compatible with, and supported the overall architecture design. These issues occurred because the Department had not defined the roles, responsibilities, and authorities necessary to develop and implement a Department-wide architecture. Further, the Department did not have a formal program plan that established the scope, schedule, and cost of the development effort; nor had it established performance goals to measure progress toward the development of an architecture.

Government Accountability Office Report

- *Department of Energy: Contract and Project Management Concerns at the National Nuclear Security Administration and Office of Environmental Management* (GAO-09-406T, March 2009). Since 2006, the Government Accountability Office (GAO) has issued about a dozen reports examining the Department's contract administration and project management documenting cost increases and schedule delays that have occurred. For most of these projects, this resulted from inconsistent application of project management tools and techniques on the part of both the Department and its contractors. Specifically, NNSA and Environmental Management did not consistently follow requirements for project management and oversight, and continued to struggle to meet cost and schedule goals on major projects. Due to the Department's history of inadequate oversight and management of contractors, GAO continues to include contract and project management on its list of government programs at high risk for fraud, waste, abuse, and mismanagement. GAO recommended the Department ensure that project management requirements are consistently followed, to improve oversight of contractors, and to strengthen accountability. With missions often involving complex one-of-a-kind efforts, consistent and rigorous contract and project management remains vital over the coming decades as NNSA embarks on a major initiative to modernize the nation's aging nuclear weapons production facilities costing tens of billions of dollars.

National Nuclear Security Administration

Department of Energy
National Nuclear Security Administration
Washington, DC 20585

May 27, 2010

MEMORANDUM FOR: RICKY R. HASS
DEPUTY INSPECTOR GENERAL
FOR AUDITS SERVICES
OFFICE OF INSPECTOR GENERAL

FROM: GERALD L. TALBOT, JR. 5/27/10
ASSOCIATE ADMINISTRATOR
FOR MANAGEMENT AND ADMINISTRATION

SUBJECT: Comments to the IG Draft Report on PRIDE, A08TG062; IDRMS No. 2008-02009

The National Nuclear Security Administration (NNSA) appreciates the opportunity to review and comment on the Inspector General's (IG) draft report, *The National Nuclear Security Administration's Management of the Product Realization Integrated Digital Enterprise Program*. I understand that the IG conducted this audit to determine if the NNSA Product Realization Integrated Digital Enterprise (PRIDE) Program was adequately managed in a manner to achieve its intended goals and objectives.

Although NNSA is in general agreement with the report, we have some concerns with the way the IG auditors portrayed the PRIDE program. The following summarizes our response to the Inspector General's draft report:

- NNSA agrees with the finding that NNSA did not follow the Capital Planning and Investment Controls (CPIC) process with respect to the PRIDE program. This is because the program is not an IT capital acquisition.
- PRIDE, a Defense Programs Directed Stockpile Work (DSW) product realization program is 80 percent mission operations and maintenance and 20 percent program management, Enterprise architecting and technology refresh. Since PRIDE's inception in 2007 the program has followed NNSA requirements for program management as directed by the PRIDE Federal Program Manager.
- The NNSA's Programming, Planning, Budgeting and Evaluation (PPBE) process requires multi-year planning and budgeting for all activities that is updated annually in view of program performance and enacted appropriations. Based on the internal DP program plans and execution documents, PRIDE is not a subprogram or budget structure element in the budget, it is not discrete in the accounting system, nor is it an operating-expense funded project with a datasheet. The only mention in the NNSA's FY 2011-2015 budget request is in the "accomplishments" section. PRIDE is an activity like many

others conducted at a number of sites that is within the $2 billion DSW activities. It has plans and milestones and budget estimates within this subprogram, although it does not have a discrete funding request or published baseline as a line item project would have.

The following provides specific comments to the report:

1. The PRIDE program establishes and manages an integrated digital environment of optimized electronic information management systems that securely delivers weapons design and production information to all site-based users across the Nuclear Security Enterprise (NSE). PRIDE is a DSW product realization program (implementing the phase 6.X process through the efficient application of electronic information management systems). All references to information technology (IT) in this report should be replaced with "product realization". A significant part (about 80%) of the PRIDE funding base is related to operations and management, while other funding elements are directed to "architecting" activities that will intentionally not result in an IT solution being delivered. NNSA believes the IG may have misunderstood the term "development cost" as it relates to PRIDE. PRIDE is not developing an IT system and is not an IT system. Thus, PRIDE is neither a capital asset, per se, nor a development program. PRIDE is a capabilities improvement program driven by DSW mission business requirements including digital models-based concurrent design and manufacturing. The PRIDE integrated and interdependent "system of systems" represents the NNSA vision of a future Integrated Digital Enterprise that has no end. PRIDE's goal is to continually operate and optimize a collaborative digital environment of product realization capabilities enabling DSW. PRIDE is not an IT system as portrayed in the IG report. PRIDE enables effective Defense Programs DSW management across the extended NSE. It should be noted that PRIDE is not making a "capital investment" in an "IT solution," but is instead a series of site-based integrated projects being run as a program, with the projects numbering over 100 in total as identified in the report.

2. Since its inception in 2007 the PRIDE Federal Program Manager and the Program Management Team (PMT) have continuously directed and managed the PRIDE portfolio of investments using predetermined and agreed-upon investment management strategies, practices, principles, and governance. NNSA sites provide status reports to the Federal Program Manager on a continuous basis in order to monitor progress and report on completed program deliverables. Detailed program reviews are held quarterly and site-based performance evidence documentation is extensive and its contents exhaustive. Since the program inception, all PRIDE final decisions reside with the Federal Program Manager. The PRIDE PMT comprised of contractor representatives from various NNSA sites, makes recommendations and presents options for NNSA approval. PRIDE has followed NNSA DSW requirements for program management, as directed by the PRIDE Federal Program Manager. This has resulted in an extensive set of management documentation and processes related to the program, the core of which is listed below.

   - Volume 1 – PRIDE Program Plan
   - Volume 2 – PRIDE FY10-FY16 Budget
   - Volume 3 – PRIDE Information Systems Catalog

- Volume 4 – PRIDE Governance Manual
- Volume 5 – PRIDE FY10 Project Scoping Documents
- Volume 6 – PRIDE Business Implementation Strategy

These documents are updated regularly. They form the core of the documentation of PRIDE's management processes and budgetary oversight at the program level, including a baseline ("as is" state) for all projects (PRIDE applications) that are improvement activities (reference Volume 5). While these documents were provided to the auditors, they are not referenced in the draft report, which states that the project "had not applied effective oversight controls". The NNSA PRIDE program office has quarterly reporting for all projects and access to detailed site-based reporting. NNSA has had and currently has available, all PRIDE reports, site-based evidence documentation, project plans, project baselines, and the Troux Solutions Enterprise Architecture artifacts. The IG committed to meet with the NNSA Federal Program Manager prior to the release of the draft report, but unfortunately this meeting did not occur.

3. The original first year PRIDE program plan in FY 2008 was based on that year's five year Defense Programs budget projections. As a routine matter, NNSA management processes require a multi-year time horizon for program, and program funding estimates are updated annually based on performance and enacted appropriations. This activity is considered routine program management for NNSA and, therefore, for PRIDE as well. The results of this are folded into the PRIDE program documentation referred to above and also mesh with site budget planning activities within DSW. The PRIDE PMT planned and budgeted over 100 projects and then updated and realigned PRIDE applications at the beginning of each fiscal year. Thus, these costs are an annual operational cost, not a discrete project cost of $231 million as asserted by the auditors. The draft report makes references that indicate that the program is "over budget" and has extended its schedule, indicating a lack of control. This is incorrect.

In summary, the PRIDE program has applied a consistent and documented set of controls over its lifecycle. The program has not performed capital IT planning because the program is not delivering an integrated single solution, but is instead a series of projects operating under NNSA Defense Programs program guidance.

For your consideration, attached are technical comments which we believe will improve the accuracy of the report.

NNSA concurs with the recommendations.

- The Office of the Chief Information Officer (OCIO) will work with the PRIDE program officials to evaluate the PRIDE portfolio of IT investments in order to determine the correct course of action for the Office of Management and Budget (OMB) and DOE OCIO reporting. A meeting has been scheduled with the NNSA OCIO Capital Planning & Investment Control Lead and PRIDE officials to review all IT investments and establish a plan forward to address PRIDEs inventory of IT projects for possible inclusion in the OMB reporting cycle.

- NNSA will establish, define, and differentiate "Mission vs. Infrastructure" investments and submit appropriate EX300s. NNSA will consider establishing an Advisory or Executive Steering Committee that includes a federal team making final decisions on future major IT investment decisions.
- NNSA Defense Programs will continue to provide effective comprehensive federal program oversight and management of the PRIDE program and the OCIO will develop a training plan for full Federal Project Director (FPD) certification or by leveraging an existing Level 3 FPD to manage the CPIC-related major IT investment portions of the program. NNSA Defense Programs will implement this recommendation using a tailored approach in cooperation with the NNSA CIO.

If you have any questions concerning this response, please contact JoAnne Parker, Acting Director, Office of Internal Controls, at 202-586-1913.

Attachment

cc: NNSA Chief Information Officer
Principal Assistant Deputy Administrator for Military Application

IG Report No. DOE/IG-0836

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