

Report to Congressional Committees

August 2005

NUCLEAR NONPROLIFERATION

Better Management Controls Needed for Some DOE Projects in Russia and Other Countries





Highlights of GAO-05-828, a report to congressional committees

Why GAO Did This Study

The National Defense Authorization Act for FY 2004 mandated that we assess the management of threat reduction and nonproliferation programs that the Departments of Defense and Energy each administer. The objective of this report is to assess how the Department of Energy's National Nuclear Security Administration (NNSA) implements management controls, which we define here to be the processes ensuring that work done under a contract meets contract specifications and that payments go to contractors as intended.

What GAO Recommends

To create effective management controls, we recommend that the Secretary of Energy, working with the Administrator of NNSA, require that: (1) NNSA develop guidance for implementing and documenting management controls, (2) program managers have quick access to key contract records, regardless of the records' location, and (3) NNSA perform periodic reviews of its management controls to ensure their effectiveness. NNSA accepted our recommendations but took issue with our assessment of management controls in some cases. We believe that the facts support our assessment and that the implementation of our recommendations will improve the effectiveness of the management controls we reviewed.

www.gao.gov/cgi-bin/getrpt?GAO-05-828.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Gene Aloise, 202-512-3841, aloisee@gao.gov.

NUCLEAR NONPROLIFERATION

Better Management Controls Needed for Some DOE Projects in Russia and Other Countries

What GAO Found

Two NNSA offices, the Office of Nuclear Risk Reduction (designated by NNSA as NA-23) and International Material Protection and Cooperation (NA-25), documented management controls for almost all of their contracts that we reviewed, but the third office, the Office of Nonproliferation and International Security (NA-24), did not document controls for most of their contracts because they could not provide the required documentation. More specifically, for eight of the nine NA-23 and NA-25 contracts we reviewed, the NA-23 headquarters staff and the laboratory staff that manage the contracts for NA-25 provided to us complete records of deliverables and invoices, as well as evidence that technical officials reviewed and approved the deliverables and contract officers reviewed and approved the invoices. (For the ninth contract, NA-25 provided us with incomplete documentation of its controls.) In addition, NA-23 and NA-25 each apply procedural guidance that assists managers in maintaining these controls. However, according to an NNSA official, none of the three offices currently perform periodic reviews to ensure their existing management controls remain appropriate.

In contrast, we were unable to determine if NA-24 implements management controls because, for seven of the nine contracts we reviewed, the documentation it provided to us was in most cases either incomplete or it provided no clear audit trail that we could follow. (Documentation was complete for the eighth and ninth contracts.) The types of documents that were missing varied across and within some contracts. In addition, NA-24 does not provide its contract managers with procedural guidance on how to maintain its management controls, nor does it perform a periodic review of its controls to ensure the controls are effective and appropriate.

NNSA Documentation of Management Controls in Nuclear Nonproliferation Contracts, by Number of Contracts				
NNSA Office	Documents complete and management controls evident	Documents and/or approvals incomplete	Documents provide no clear audit trail	Total
NA-23	2	0	0	2
NA-24	2	4	3	9
NA-25	6	1	0	7

Source: GAO.

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Abbreviations

BNL	Brookhaven National Laboratory
CRDF	U.S. Civilian Research and Development Foundation
DOD	Department of Defense
DOE	Department of Energy
FRAEC	Foundation for Russian American Economic Cooperation
GIPP	Global Initiatives for Proliferation Prevention
HEU	Highly Enriched Uranium
INL	Idaho National Laboratory
IPP	Initiatives for Proliferation Prevention
ISTC	International Science and Technology Center
LANL	Los Alamos National Laboratory
LBNL	Lawrence Berkeley National Laboratory
LEU	Low Enrichment Uranium
LLNL	Lawrence Livermore National Laboratory
NNSA	National Nuclear Security Administration
ORNL	Oak Ridge National Laboratory
PNNL	Pacific Northwest National Laboratory
SNL	Sandia National Laboratory
STCU	Science and Technology Center of Ukraine
TST	Technical Survey Team

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United States Government Accountability Office Washington, D.C. 20548

August 29, 2005

The Honorable John Warner Chairman The Honorable Carl Levin Ranking Minority Member Committee on Armed Services United States Senate

The Honorable Duncan Hunter Chairman The Honorable Ike Skelton Ranking Minority Member Committee on Armed Services House of Representatives

In March 2000, the National Nuclear Security Administration (NNSA) assumed responsibility for carrying out the Department of Energy's (DOE) national security and nuclear nonproliferation responsibilities. These nuclear nonproliferation projects, most of which have been undertaken in Russia but also reside in many other foreign countries, involve DOE's national laboratories, U.S. contractors, and Russian scientists and contractors and entail activities such as upgrading the security of nuclear weapons sites and "blending-down" weapons-grade highly enriched uranium so it can be used in nuclear power plants to generate electricity. From fiscal year 2001 through fiscal year 2004, DOE obligated \$1.7 billion on these projects, which are comprised of multiple contracts for construction work or the provision of services.

¹Title 32 of the National Defense Authorization Act for Fiscal Year 2000 (Pub. L. No. 106-65 (1999)) created NNSA as a separately organized agency within DOE.

²Countries in the former Soviet Union receiving these contracts include Ukraine, Armenia, Georgia, Kazakhstan, Uzbekistan, and the Kyrgyz Republic. Other countries involved in NNSA nonproliferation projects include Greece and Turkey. However, of the 72 nonproliferation projects that NNSA provided us, 66 of the projects, representing over 99.4 percent of their dollar value, involved work in Russia.

³DOE oversees the largest laboratory system of its kind in the world. The mission of DOE's 23 national laboratories has evolved over the last 55 years. Originally created to design and build atomic bombs under the Manhattan Project, these national laboratories have since expanded to conduct research in many disciplines—from high-energy physics to advanced computing at facilities throughout the nation. Nine of DOE's laboratories are large, multiprogram national laboratories that dominate DOE's science and technology activities.

Three offices within NNSA administer most of the nonproliferation projects:⁴

- The Office of Nuclear Risk Reduction (designated by NNSA as NA-23) seeks to reduce the risk of accidents at foreign nuclear facilities by, among other things, strengthening foreign governments' abilities to respond to nuclear emergencies. For example, two current projects aim to enable two Russian cities, Seversk and Zheleznogorsk, to replace nuclear power reactors that produce weapons-grade material that the cities currently use for heat and electricity production with fossil-fuel electricity plants. NA-23 staff provide the day-to-day management of the contracts for these projects.
- The Office of Nonproliferation and International Security (NA-24), counters proliferation and strengthens the nonproliferation regime by promoting transparency and verification in the dismantlement of weapons of mass destruction (WMD), denying acquisition of WMD by terrorists and illicit trade in nuclear technology, and encouraging international partners to strengthen their export controls and redirect the work of former nuclear scientists, technicians, and engineers toward projects with commercial potential, such as the development of titanium alloys for medical applications. DOE's national laboratories provide most of the day-to-day technical management of the contracts for these projects.
- The Office of International Material Protection and Cooperation (NA-25) administers projects designed to, among other things, improve the security of weapons-usable nuclear and radiological material and enhance detection infrastructure at sites that currently store these

⁴Two other NNSA offices also do nonproliferation work in Russia: the Office of Global Threat Reduction (NA-21) and Office of Fissile Materials Disposition (NA-26). NA-21's mission is to identify, secure, remove, and/or facilitate the disposition of vulnerable, high-risk nuclear and other radiological materials that pose a threat to the United States. Many of NA-21's projects were previously administered by NA-24 and NA-25. NA-26's mission is to reduce inventories of surplus fissile materials in a safe, secure, transparent, and irreversible manner. NA-26's projects were not included because at the time we began our work, they did not have significant nonproliferation contracts under way outside the United States.

⁵See GAO, Nuclear Nonproliferation: DOE's Effort to Close Russia's Plutonium Production Reactors Faces Challenges, and Final Shutdown Is Uncertain, GAO-04-662 (Washington, D.C.: June 4, 2004).

materials. The national laboratories provide most of the day-to-day management of the contracts that carry out these projects.

The three NNSA offices use essentially the same process to ensure contractors' work and payments made to them meet the specifications of the contract. After contractors or scientists complete a task, they send a deliverable (a technical report or other documentation of the work performed) and an invoice to the appropriate national laboratory or NNSA office for technical review and approval. If the technical reviewer approves the deliverable, he or she documents approval and forwards the documentation of the approval, along with the invoice, to the contract officer at the national laboratory or NNSA office. If the contract officer approves the invoice, in most cases, the national laboratory then makes payment to the contractors or scientists. In other cases, the deliverable and invoice then proceed to the relevant NNSA office for further review, and either the office or another organization makes the final payment to the contractors or scientists.

A key way for federal program managers to ensure accountability within such contracting processes, as well as to improve outcomes and minimize problems in their programs, is to implement appropriate management (internal) controls. As described in two GAO documents, *Standards for Internal Controls in the Federal Government* and *Internal Control Management and Evaluation Tool*, management controls can address

For some contracts under the auspices of NA-24's Initiatives for Proliferation Prevention (IPP) program, the International Science and Technology Center (ISTC) in Moscow, or the Science and Technology Center of Ukraine (STCU) in Kiev manage the contract and make all payments. In these cases, quarterly payments may be made before the technical review is completed but, if the technical reviewer is not satisfied with the progress of the work, the next quarter's payments may be withheld until the issue is resolved. These centers were the subject of an earlier GAO report, see GAO, Weapons of Mass Destruction: State Department Oversight of Science Centers Program, GAO-01-582 (Washington, D.C.: May 10, 2001). See also Nuclear Nonproliferation: DOE's Efforts to Assist Weapons Scientists in Russia's Nuclear Cities Face Challenges, GAO-01-429 (Washington, D.C.: May 3, 2001).

Those IPP contracts not managed by one of the science centers are managed by a national laboratory or NNSA headquarters directly. In these cases, the process for technical approval of deliverables is similar, but NNSA headquarters must also approve deliverables before payments are approved. The actual payments are made via the U.S. Civilian Research and Development Foundation (CRDF). All IPP program deliverable payments are made via third parties (ISTC, STCU, and CRDF) directly into former Soviet weapons scientists' or engineers' bank accounts in order to comply with the congressional requirement that all payments be made tax free; these three organizations have the legal and technical wherewithal to do so.

many activities in a program or organization. Therefore, it is important that a program's management controls relate directly to its processes and activities. Thus, in the context of NNSA's nuclear nonproliferation projects, appropriate management controls mean that the three offices do the following with each component contract:

- maintain complete records of deliverables and technical officials' review and approval of them;
- maintain complete records of invoices and contract officers' review and approval of them;
- maintain documentation of the above records for ready access by agency program managers, either at a national laboratory or headquarters, to facilitate active monitoring of the contract;
- use formal, procedural guidance that specifies processes for maintaining management controls; and
- periodically review management control processes and documentation to ensure they remain appropriate and effective.

The National Defense Authorization Act for Fiscal Year 2004⁸ mandated that we assess the management controls used to carry out nonproliferation and threat reduction projects administered by DOE and the Department of Defense (DOD) and the effect of these controls on the execution of the projects. In response, we have issued two reports to date. The first report assessed how DOD and NNSA use their own strategies to guide their respective threat reduction and nonproliferation projects and how well the agencies have coordinated their strategies.⁹ The second report examined DOD's management controls for its Cooperative Threat Reduction program.¹⁰ This report, which completes our response to the mandate, assesses NNSA's implementation of management controls for its nuclear nonproliferation projects.

⁸Pub. L. No. 108-136, § 3611 (2003).

⁹See GAO, Weapons of Mass Destruction: Nonproliferation Programs Need Better Integration, GAO-05-157 (Washington, D.C.: Jan. 28, 2005).

¹⁰See GAO, Cooperative Threat Reduction: DOD Has Improved Its Management and Internal Controls, but Challenges Remain, GAO-05-329 (Washington, D.C.: June 30, 2005).

To perform this assessment, we obtained from the three relevant NNSA offices a list of contracts for nuclear nonproliferation projects that were active between June 2001 and June 2004. From this list, we then identified contracts whose value exceeded \$1 million. Going down this list, we selected a nonprobability sample of the largest 18 dollar-value contracts: two from NA-23, nine from NA-24, and seven from NA-25.11 This mix reflected the proportion of contracts among the three offices that were active from June 2001 through June 2004 and included at least one contract from each of the national laboratories cited on the original list of nonproliferation contracts that we received from NNSA—Brookhaven in New York, Los Alamos and Sandia in New Mexico, Lawrence Berkeley and Lawrence Livermore in California, Oak Ridge and the Y-12 National Security Complex in Tennessee, Pacific Northwest in Washington, and the Idaho National Laboratory. In addition, we obtained documents on the three offices and the 18 contracts and interviewed officials from each of the offices and national laboratories. 12 A more detailed description of our methodology is included at the end of this letter.

We conducted our work from May 2004 to July 2005 in accordance with generally accepted government auditing standards.

Results in Brief

Two NNSA offices, NA-23 and NA-25, documented management controls for almost all of their contracts that we reviewed; but the third office, NA-24, could not provide us with complete records related to its contracts, and thus could not document its management controls. Regarding NA-23 and NA-25, for eight of the nine contracts we reviewed, the staffs that manage these contracts provided to us complete records of deliverables, invoices, and evidence that technical reviewers approved the deliverables and contract officers approved the invoices. NA-23 and NA-25, as evidenced by their ability to provide us with key contract records, maintain the key contract documents at headquarters and the national laboratories, respectively, such that the records are quickly accessible for active monitoring by contract and program managers. In addition, NA-23 and NA-

¹¹Results from nonprobability samples cannot be used to make inferences about a population, because in a nonprobability sample, some elements of the population being studied have no chance or an unknown chance of being selected as part of the sample.

 $^{^{12}}$ Although one of the contracts we examined involves work in Ukraine, the other 17 contracts involve work in Russia, so we refer to all work as being in Russia for simplicity of discussion.

25 each use formal procedural guidance on how to maintain management controls for their contracts. Finally, according to NNSA officials, neither of the offices performs periodic reviews of their management control processes, although NA-23 had a review performed on its management controls at the outset of its projects.

Regarding NA-24, staff could not provide a complete set of deliverables, invoices, and approvals of deliverables and invoices for seven of the nine contracts we reviewed. The types of missing documents differed among contracts. For example, for one contract, NA-24 documented that a technical official had approved work performed but provided no proof that a contract officer had approved the invoice for the work. On another contract, NA-24 provided us with fewer than half the deliverables and onefifth of the invoices. Moreover, although NA-24 officials told us that the national laboratories maintain key contract records so that NA-24's managers have quick access to them, the inability of NA-24 to obtain these records suggests that this may not be the case. In addition, NA-24 does not use formal, procedural guidance on how to maintain management controls for its contracts. Finally, like NA-23 and NA-25, NA-24 does not periodically review its management control processes, as suggested by GAO management control standards, to ensure that the controls remain appropriate and effective.

We are recommending that the Secretary of Energy, working with the Administrator of the National Nuclear Security Administration, require NNSA to take a number of actions designed to strengthen its management control processes. Specifically, we recommend that (1) NNSA develop formal, procedural guidance for its program managers that clearly states management control processes; (2) NNSA's program managers maintain quick access to key contract records such as deliverables and invoices that relate to management controls, regardless of the records' location; and (3) NNSA perform periodic reviews of its management controls to ensure their effectiveness.

In its written comments to a draft of this report, NNSA stated that it will undertake a series of actions in response to our recommendations, but it believes that our report creates an inaccurate perception that the Defense Nuclear Nonproliferation Program, particularly NA-24, is lacking in the application of management controls. In response, we believe that the facts support our assessment and that the implementation of our recommendations will improve the effectiveness of the management

controls we reviewed. We have incorporated technical changes into the report where appropriate.

Management Controls Are in Place for Two of the Three NNSA Offices Administering Contracts for Nuclear Nonproliferation Projects Two NNSA offices, NA-23 and NA-25, documented management controls for almost all of their contracts that we reviewed; but the third office, NA-24, could not provide us with the complete records necessary to document these controls. Similarly, NA-23 and NA-25 provide their technical reviewers and contract managers with procedural guidance that assists in maintaining these controls, while NA-24 did not provide this type of guidance. In addition, NA-23 and NA-25 maintain the key contract documents at headquarters and the national laboratories, respectively, in such a way that the records are quickly accessible for active monitoring by contract and program managers, as evidenced by their ability to provide us with key contract records.

NA-23 and NA-25 Documented Management Controls for the Contracts We Reviewed

Two NNSA offices, NA-23 and NA-25, documented management controls for most of their contracts that we reviewed. As shown in table 1, for eight of the nine contracts we reviewed from these two offices, NA-23 staff and national laboratory officials who manage NA-25's contracts provided us with complete records of deliverables and invoices as well as evidence that technical reviewers and contract officers reviewed and approved deliverables and invoices, respectively. (For the ninth contract, which involved comprehensive physical protection upgrades to a strategic rocket forces site in Russia, Oak Ridge National Laboratory did not provide complete documentation of approvals for deliverables.) For example, the two contracts we reviewed from NA-23—which are designed to construct or refurbish fossil-fuel plants for the Russian cities of Zheleznogorsk and Seversk so that each city can shut down its plutonium-producing nuclear reactor that it currently uses to generate heat and electricity—involve multiple contractors in the United States and Russia. Despite being by far the largest contracts by dollar value in our sample (\$390 million for Seversk and \$570 million for Zheleznogorsk—the next largest contract was valued at \$29 million), NA-23 headquarters provided us with, among other things, complete documentation of all invoices; photographs of the deliverables (i.e., construction work) completed to date; and evidence of the reviews and approvals of the invoices and payments to the foreign contractors and subcontractors. NA-23 also provided us with detailed breakdowns of work (called Work Breakdown Structures), work authorizations, and cost evaluations for each project. The documentation NA-23 provided us was

among the most complete and organized of all the contracts we reviewed. An NA-23 official told us that this office makes efforts to specify in acute detail the work to be done and the costs for that work because this enables the office to effectively monitor and maintain a degree of control over the work of foreign contractors and subcontractors.

Table 1: NNSA Documentation of Management Controls in Nuclear Nonproliferation Contracts, by Number of Contracts

NNSA Office	Documents complete and management controls evident	Documents and/ or approvals incomplete	Documents provide no clear audit trail	Total
NA-23	2	0	0	2
NA-24	2	4	3	9
NA-25	6	1	0	7

Source: GAO.

NA-25 officials also provided us with complete documentation of management controls for the contracts they manage. As shown in table 1, for six of the seven contracts we reviewed, the national laboratories that manage these contracts provided complete records of deliverables and invoices as well as evidence that technical reviewers at the national laboratories and/or contract officers at the national laboratories and/or NA-25 reviewed and approved the deliverables and invoices, respectively. (The seventh contract is the Oak Ridge contract, mentioned above.) For example, for the two contracts we reviewed that Brookhaven National Laboratory manages for NA-25, each invoice on the contracts received at least one approval from technical reviewers at the laboratory, and each financial transaction received two approvals from contract managers. In another contract involving the purchase of nuclear detection devices for deployment in Russia, the national laboratory managing the contract— Pacific Northwest—provided us with purchase orders for the contract as well as a receipt of delivery so that we could verify that the goods purchased had reached their destination prior to final delivery in Russia.

Both NA-23 and NA-25 maintain copies of key records, such as deliverables and invoices within quick access to program and contract managers, as evidenced by the ability of each office to provide these records to us. NA-23 maintains these records at headquarters, while NA-25 maintains the records at the national laboratories that provide the day-to-day management over the contracts. However, it is important to note that the

laboratories should be able to provide NNSA managers with complete and quick access to contract records, as the national laboratories are contractors to DOE, and it is NNSA that is ultimately responsible for monitoring the nonproliferation projects.

NA-23 and NA-25 each apply formal, procedural guidance that assists technical reviewers and contract managers in maintaining management controls. For example, because the contracts involve capital procurement or acquisitions exceeding \$5 million, NA-23 must apply the rules and procedures specified in DOE Order 413.3, Project Management for the Acquisition of Capital Assets. NA-23's contract managers receive program guidance through work authorizations signed by an authorized official at NNSA headquarters and guidance on the payment process via DOE's Contract Specialist Guide 42.8, which specifies procedures for review and approval of vouchers and invoices so that contract managers will handle them in a timely and efficient manner. According to NA-23 officials, Federal Acquisition Regulations also stipulate many of the specific steps that NA-23 must undertake in the planning, implementation, and review of the contracts that make up the Seversk and Zheleznogorsk projects. NA-25 developed its own procedural guidance, known as the Project Management Document, for technical reviewers and contract officials. This guide provides instructions on, among other things, project planning, funds management, reporting of a project's ongoing progress and costs, contract management, and procedures for putting important contract data into NA-25's Program Management Information System.

Finally, according to NNSA's Director of Policy and Internal Controls Management and an NNSA official in charge of acquisitions in the Office of Defense Nuclear Nonproliferation, neither NA-23 nor NA-25 perform periodic reviews of their management control processes, although NNSA's Office of Engineering and Project Support, at the outset of NA-23's projects, did perform a general review of NA-23's management controls. GAO's management control guidelines state that agencies should monitor and regularly evaluate their control activities to ensure that they are still appropriate and working as intended.

NA-24 Provided Insufficient Documentation on Management Controls

NA-24 could not provide evidence of the records necessary to document its management controls. Despite our numerous inquiries from January 2005 to June 2005 and discussions with agency officials—including one with NNSA's Principal Assistant Deputy Administrator—the documentation we received on seven of the nine contracts we examined from this office was

either incomplete or did not provide a clear audit trail that we could follow. (For the two other contracts, one managed by Brookhaven National Laboratory and one managed by Los Alamos National Laboratory, laboratory officials provided complete documentation of management controls.) For example, for one contract managed by the Idaho National Laboratory involving the discovery of bioactive compounds in Russia that may be used in watershed protection or carbon sequestration:

- Ten of the 35 invoices did not include a document showing that NA-24 had authorized payment to the Russian contractors.
- Fourteen invoices on this contract did not include evidence that Idaho National Laboratory's technical reviewer for the contract approved the deliverable on which the invoice was based.

For another contract managed through NA-24 headquarters, Foundation for Russian American Economic Cooperation (FRAEC), NA-24 provided us with documentation, but we were able to determine very little about the contract on the basis of this documentation because of the following reasons:

- there appeared to be no explanation of the linkages between the work products outlined in the contract, the deliverables, and the invoices, and
- we received fewer than half of the invoices for the contract and fewer than one-fifth of the deliverables for the contract.

Senior officials with NA-24 told us that it doesn't need to keep copies of key contract documents because the documents are maintained at the national laboratories managing the contracts and accessible to NA-24. However, the fact NA-24 was unable to obtain complete sets of records on seven of the nine contracts we reviewed suggests otherwise. In addition, NA-24 did not provide us with formal, written guidance that provides managers with the procedures on how to process and maintain key contract records, and the office appears to rely on each national laboratory to provide its own procedural guidelines.

Finally, NA-24, like NA-23 and NA-25, does not perform periodic reviews of its management control processes. GAO's management control guidelines state that agencies should monitor and regularly evaluate their control activities to ensure that they are still appropriate and working as intended.

Conclusions

On the basis of our review of the contracts, it appears that, if an NNSA program office provides its managers with procedural guidance on how to maintain management controls, the office does a better job at implementing and documenting these management controls. In our view, procedural guidance enables program and contract managers to implement and document management controls in a systematic way, as evidenced by the fact that NA-23 and NA-25 each use procedural guidance and were able to document their controls.

In addition, maintaining managers' quick and complete access to key contract records—regardless of whether the records are located at the national laboratory or NNSA headquarters—appears to coincide with maintaining and documenting management controls. Officials at NA-24 told us that they have access to all contract records through the laboratories that manage their contracts, yet the office was unable to provide us with these records.

Finally, as required by GAO standards for management controls, periodic reviews of management controls would help the NNSA offices that we reviewed determine whether they are adhering to their management controls and whether these controls are relevant and effective. For example, if NA-24 had performed a review of its management control procedures, it might have discovered that it did not have on hand complete sets of invoices and approvals of deliverables for each of the office's nonproliferation contracts.

Recommendations

To ensure that each NNSA office that we reviewed maintains complete documentation of its management controls, we recommend that the Secretary of Energy, working with the Administrator of the National Nuclear Security Administration, require NNSA to take the following three actions:

- each NNSA office use formal, procedural guidance that clearly states management control processes;
- NNSA's program managers maintain quick access to key contract records such as deliverables and invoices that relate to management controls, regardless of whether the records are located at a national laboratory or headquarters; and

 NNSA perform periodic reviews of its management control processes to be certain that each program office's management controls can be documented and remain appropriate and effective.

Agency Comments and Our Evaluation

We provided the Department of Energy's National Nuclear Security Administration (NNSA) with a draft of this report for its review and comment. NNSA's written comments are presented as appendix III. In its written comments, NNSA notes that it will undertake a series of actions in response to our recommendations, but also states that our report creates an incorrect perception that the Defense Nuclear Nonproliferation Program, particularly NA-24, is lacking in the application of management controls.

In their comments to our draft report, NNSA's major points are as follow:

- 1. We reviewed only contracts from a portion of NA-24, Global Initiatives for Proliferation Prevention (GIPP), and we did not receive complete documentation from NA-24 because we did not speak to the procurement officer for the GIPP program;
- 2. NA-24 has implemented "very stringent" management controls;
- 3. We mischaracterize the management controls on two contracts—one managed by the Idaho National Laboratory (INL) and the other managed by NA-24 headquarters staff;
- 4. For an NA-25 contract managed by Oak Ridge National Laboratory, we received incomplete documentation because of an initial misunderstanding by the laboratory rather than a control problem within NA-25, and that managers at Oak Ridge sent us the missing documents on August 16, 2005.
- 5. NA-25 does conduct external program management reviews of its management controls through a Technical Survey Team (TST).

First, regarding the scope of our review, at the outset of our work, we asked NA-24 for a list of all its contracts in Russia and other countries that were active from the beginning of June 2001 through the end of June 2004, then took a nonprobability sample of those contracts. We did not intentionally focus solely on NA-24's GIPP program. Regardless, as we state in the report, results from nonprobability samples cannot be used to make

inferences about a population, and our statements about NA-24 relate to its ability to document the management controls for the contracts we examined. Regarding NNSA's comment that we did not meet with the GIPP procurement officer, it is unclear to us why NNSA is making this point. For most of the contracts we reviewed, NA-24 provided us with documents directly. After providing NA-24 with a fact sheet stating that we received incomplete documentation for seven of the nine the contracts we reviewed, we met with NA-24's Assistant Deputy Administrator on June 27, 2005, who provided us with additional documentation that she characterized as "complete". After a thorough review, we found much of this additional documentation to be incomplete, indecipherable, and often duplicative of the information we had already been given earlier in our review. On August 17, 2005, after submitting our draft report to NNSA for comment, we met again with the Assistant Deputy Administrator as well as the Associate Assistant Deputy Administrator, the Principal Assistant Deputy Administrator for Defense Nuclear Nonproliferation, and the GIPP procurement officer. At this meeting, the procurement officer provided us with no new documentation, and the NA-24 officials again asserted that the documents they provided us in June were "complete". Furthermore, during the meeting, while discussing some of the documents that we found to be missing, we asked the officials to produce a few of these documents at random from the materials they gave us in June. In most cases, they were unable to do so. In fact, in the case of one missing document, an NA-24 official stated that it "had to be somewhere in there" (included in the materials submitted in June), but it was not.

Second, we disagree with NA-24's contention that it has implemented "very stringent" management controls. Although NNSA cites a number of actions that NA-24 has taken to strengthen its controls, the fact remains that NA-24 did not provide us with sufficient documentation for seven of the nine contracts we reviewed despite numerous requests from us to do so. For example, on one contract managed by the Y-12 National Security Complex, rather than providing a "real-time" technical reviewer's approval for each deliverable, NA-24 provided us with a single email from the technical reviewer, dated June 24, 2005, that purported to cover two years' worth of missing approvals. This post-hoc approval does not represent a satisfactory management control. Based on what NA-24 provided us, we believe that the office's controls for some contracts we reviewed are weak. In our view, NA-24 needs to implement actions that address and strengthen the specific management controls we identify in the report, and we are encouraged that NNSA has agreed to implement our recommendations.

Third, for the INL-managed contract, NNSA asserts that it provided us in June with the documentation we sought. However, the documents were indecipherable to us because most were unlabeled, presented in no particular chronological order, and rely on emails in which neither the sender's nor recipients' positions were identified. For the headquarters-managed contract, NNSA contends that, at our meeting on August 17, 2005, it explained how the process of deliverables and invoices for this contract (providing assistance to the Foundation for Russian American Economic Cooperation) differs from the processes of other contracts we examined. Although this may be the case, the documents that NA-24 provided did not clearly explain or illustrate those processes. More importantly, the documents that NA-24 provided comprised fewer than one-half of the deliverables and one-fifth of the invoices that we identified in June as missing.

Fourth, although we have fewer concerns about NA-25's management controls, in the case of one of the contracts managed by Oak Ridge National Laboratory, managers provided acceptable documentation of technical reviewers' approvals on only three of six deliverables. Although we agree with NNSA that officials at the laboratory did not initially provide us with complete documentation of technical approvals, as we state in the report, NNSA is ultimately responsible for the controls on its contracts, even if the contracts are managed day-to-day by someone else. In addition, the documentation that officials at the laboratory sent us on August 16, 2005, did not provide all the information that was missing. Rather, they provided documentation of one additional technical review and resubmitted materials that we had already informed Oak Ridge managers did not represent acceptable documentation. As a result, we stand by our recommendation that NNSA perform periodic reviews of management controls for each of the three offices we examined.

Fifth, regarding NNSA's statement that TST performs external reviews of NA-25's management controls, it is important to note that the TST is a panel of experts established by DOE to determine if DOE-installed security systems at Russian nuclear sites meet departmental guidelines for effectively reducing the risk of nuclear theft. Moreover, we spoke to NNSA's Director of Policy and Internal Controls Management on August 26, 2005, and he agreed that, while the TST provides useful project oversight, it does not provide the kind of comprehensive review of program management controls examined in our review. More importantly, during the course of our work, NA-25 did not provide evidence of any reviews of their management controls.

Finally, we believe it is important to note that management controls were most evident on NA-24 and NA-25 contracts managed by national laboratories from which we were able to obtain all the necessary documentation directly, without any NNSA headquarters involvement. This was especially noteworthy in the case of NA-24 because both of this office's contracts that we determined demonstrated effective management controls were managed by a national laboratory – Brookhaven or Los Alamos – and in both cases we obtained all the necessary documents directly from the laboratory managers.

Scope and Methodology

To assess the effectiveness of the NNSA's management controls of its nonproliferation projects, we identified the three offices within NNSA that currently oversee and manage the nonproliferation projects that fell within the scope of our work: (1) the Office of Nuclear Risk Reduction (designated by NNSA as NA-23), (2) the Office of Nonproliferation and International Security (NA-24), and (3) the Office of International Material Protection and Cooperation (NA-25). To identify what constitutes management controls, we consulted two GAO documents: Standards for Internal Controls in the Federal Government and Internal Control Management and Evaluation Tool. Using these documents, we focused on the management controls associated with NNSA's nonproliferation contracts. More specifically, we examined the supervisory actions designed to ensure that the work performed under the contract (known as "deliverables") meet the contract's specifications and that payments for that work receive required approvals and reach the intended recipients. To do this, we sought from NNSA the following documents for each of the contracts we reviewed:

- statement of work;
- contract deliverables (or summary of the deliverable as practicable);
- technical approval from an NNSA or national laboratory official for each deliverable;
- invoices for all deliverables;
- documentation of an independent payment authorization and review for each deliverable, which should include at least one signature from a national laboratory financial office official supervising the contract and/or one official at NNSA headquarters;

- approval letter from NNSA or the national laboratory authorizing the final payment of the contractors for a deliverable (as applicable);
- a guide to the process each national laboratory uses to approve a deliverable and authorize payment.

To select a nonprobability sample of contracts, we obtained, from the three offices in NNSA, a list of all their nonproliferation contracts in Russia and other countries that were active from the beginning of June 2001 through the end of June 2004. We identified contracts whose value exceeded \$1 million and arranged them in descending dollar value. We chose the 15 contracts with the largest dollar value, subject to the constraints that (1) no more than two contracts come from NA-23, 7 contracts from NA-24, and six contracts from NA-25 and (2) a single national laboratory manages no more than three contracts in our sample. We chose these constraints so that (1) the mix of contracts among the three offices in our sample roughly reflected the mix of contracts among the three offices in our original list and (2) the sample would reflect a diversity of laboratories. Finally, we included one contract from each of the three remaining laboratories that were not yet included in our sample, bringing our final list to 18 contracts.

To ensure that NNSA's lists of its nuclear nonproliferation contracts were sufficiently reliable for our purposes, we obtained responses to a series of questions covering issues such as data entry, data access, quality-control procedures, and the accuracy and completeness of the data for the eight databases from which these data were drawn. Follow-up questions were added, whenever necessary. Based on our review of this work, we found these data to be sufficiently reliable for the purpose of using these lists to select a nonprobability sample of 18 contracts for review.

In addition to contract documents, we also interviewed NNSA officials in Washington, D.C., and Germantown, Maryland. To gather information about the contracts we selected for review, we traveled to Brookhaven National Laboratory in New York and Los Alamos and Sandia National Laboratories in New Mexico to meet with laboratory officials and program, project, procurement, and contract managers to explain our review; to learn about NNSA programs and projects, as well as procedures for implementing management controls; and to determine the kinds of project documents we would need. To gather information and documents on the

¹³Only two contracts from NA-23 had dollar values exceeding \$1 million.

remaining contracts, on the basis of what we learned during these trips, we sent detailed written communications and conducted teleconferences, numerous and frequent in some cases, with the requisite staff in headquarters and at other national laboratories. Specifically, we contacted staff at the Lawrence Berkeley and Lawrence Livermore National Laboratories in California, the Oak Ridge National Laboratory and the Y-12 National Security Complex in Tennessee, the Pacific Northwest National Laboratory in Washington, and the Idaho National Laboratory. We focused on identifying the controls implemented to ensure that former Soviet Union partners meet contract terms before the invoices for the deliverables are paid.

After we gathered and evaluated all the available documentation from NNSA headquarters and the various national laboratories for each contract, we assessed the contracts on the basis of the completeness of their documentation and overall evidence of the implementation of management controls. We placed each contract in one of three categories: (1) contracts for which all or almost all of the necessary documentation was provided—especially the major contract documents (statement of work and task orders), deliverables, and technical and independent contractual/financial approvals of each deliverable—providing clear evidence of the systematic implementation of management controls throughout the life-cycle of the contract; (2) contracts for which most of the documents were provided, suggesting that systematic implementation of management controls may be occurring but not clearly indicating as much; and (3) contracts for which there were significant gaps in necessary documentation, providing no basis to conclude that systematic management controls are implemented.¹⁴

We conducted our review between May 2004 and July 2005 in accordance with generally accepted government auditing standards.

We are sending copies of this report to interested congressional committees and the Secretary of Energy. We will also make copies available

¹⁴The Federal Acquisition Regulation and the Department of Energy Acquisition Regulation provide regulatory requirements that may apply to NNSA and laboratory contracts. These requirements include, for certain contracts, systems for filing and maintenance of documents and the necessity for implementation of management controls in accordance with Comptroller General standards. We did not evaluate whether the contracts reviewed for this report were managed and documented in accordance with any applicable contracting regulations.

to others upon request. In addition, the report will be available on the GAO Web site at http://www.gao.gov.

If you have any questions regarding this report, please contact Mr. Aloise at (202) 512-3841 or aloisee@gao.gov. Contact points for our Office of Congressional Relations and Public Affairs may be found on the last page of this report. GAO contacts and staff acknowledgements are listed in appendix IV.

Gene Aloise

Director, Natural Resources and Environment

Jene Aloise

NNSA Contracts

The following table lists all NNSA contracts that we reviewed.

Project	NA	Managing Lab	\$ Contract
Zheleznogorsk Fossil Fuel Plant	NA-23	HQ	\$570,500,000
Seversk Fossil Fuel Plant Refurbishment	NA-23	HQ	\$390,000,000
Luch - Task Order 1 – Blend-down HEU to LEU	NA-25	BNL	\$29,024,700
PBZ-C2 Comprehensive Physical Protection Upgrades to Russian Navy Site	NA-25	SNL	\$10,737,740
CBC-B2 Comprehensive Physical Protection Upgrades to Russian Navy Site	NA-25	SNL	\$10,716,770
TVZ01-Minatom Guard Railcar Procurement	NA-25	ORNL	\$9,262,000
COMP2BR-Comprehensive Physical Protection System Upgrades	NA-25	ORNL	\$9,050,000
Aquila – Purchase of Equipment to enhance the monitoring of nuclear materials	NA-25	BNL	\$8,825,572
FRAEC –Technical and administrative assistance in planning, establishing, and operating the international development centers.	NA-24	HQ	\$3,716,319
Pipe Coating Facility (#63544) – Establish a production facility within the city of Snezhinsk for the production of insulated pipes.	NA-24	BNL	\$2,600,628
T2-0192-RU – Development of a 3-D neutronics optimization algorithm for application to cancer treatment facilities.	NA-24	LBNL	\$1,620,000
Nuclear Non-Proliferation Center –The Analytical Center for Nuclear Non-Proliferation will carry out research on several projects, including a Quarterly Information Bulletin and Internet Analysis and creation of an Internet page.	NA-24	HQ	\$1,500,000
T2-0186-RU – Development of a Tank Retrieval and Closure Demonstration Center in the Mining and Chemical Combine (MCC) to help in retrieval and processing of radioactive wastes generated during production of plutonium for nuclear weapons.	NA-24	SNL	\$1,350,000
T2-0194-RU – The use of new technologies to process important Ti alloys for medical applications and aerospace industries.	NA-24	LANL	\$1,290,000
T2-0204-UA – Welding and Reactive Diffusion Joining (RDJ) repair technologies for use in aircraft and land-based turbine engines.	NA-24	ORNL/ Y-12	\$1,260,000
SAIC/P.O. # 14436 – Nuclear material detectors for border guards	NA-25	PNNL	\$2,330,700
T2-0244-RU – Development of an explosives detection system.	NA-24	LLNL	\$1,260,000
T2-2002-RU – Discovery of bioactive compounds from selected environments in Russia for products such as watershed protection and carbon sequestration.	NA-24	INL	\$1,110,000

Source: GAO.

Documentation of Management Controls – GAO Assessment by Contract

NNSA Office	Managing lab	Project	Documents complete and management controls evident	Documents and/or approvals incomplete	Documents provide no clear audit trail
NA-23	HQ	Zheleznogorsk Fossil Fuel Plant	1		
NA-23	HQ	Seversk Fossil Fuel Plant	1		
NA-25	BNL	Luch Task Order 1 – Blend-down HEU to LEU	1		
NA-25	SNL	PBZ C2 – Security Upgrades to Russian Navy Site	1		
NA-25	SNL	CBC B2 – Security Upgrades to Russian Navy Site	1		
NA-25	ORNL	TVZ01- Minatom Guard Railcar Procurement	1		
NA-25	ORNL	COMP2BR – Comprehensive Physical Protection Systems Upgrades		1	
NA-25	BNL	Aquila – Enhanced nuclear materials monitoring systems	1		
NA-24	HQ	FRAEC – Technical and administrative assistance in planning, establishing, and operating international development centers.			1
NA-24	BNL	SEST #63544 - Pipe Coating Facility	1		
NA-24	LBNL	T2-0192-RU – Neutronics Algorithm for Cancer Treatment		1	
NA-24	HQ	Nuclear Non-Proliferation Center			1
NA-24	SNL	T2-0186-RU – Tank Retrieval		1	
NA-24	LANL	T2-0194-RU – Ti Alloys for Medical Applications	1		
NA-24	ORNL/Y-12	T2-204-UA – Welding and Reactive Diffusion Joining			1
NA-25	PNNL	SAIC/P.O. #14436 – Nuclear material detectors for border guards	1		
NA-24	LLNL	T2-0244-RU – Explosive Detection System		1	
NA-24	INL	T2-2002-RU (subcontract 240) – Discovery of Bioactive Compounds		1	
Total			10	5	3

Source: GAO.

Comments from the Department of Energy



Department of Energy National Nuclear Security Administration Washington, DC 20585



AUG 23 2005

Mr. Gene Aloise Director Natural Resources and Environment Government Accountability Office Washington, DC

Dear Mr. Aloise:

The National Nuclear Security Administration (NNSA) appreciated the opportunity to have reviewed the Government Accountability Office (GAO) draft report, GAO-05-828, "NUCLEAR NONPROLIFERATION: Better Management Controls Needed for Some DOE Projects." We understand that this title will be modified to reflect projects in Russia. We further understand that this report is the result of a request from the House and Senate Armed Services Committees to assess how we implement management controls, i.e., the processes designed to ensure that work performed under a contract meets contract specification and that payments go to the contractors as intended.

The draft GAO report creates an incorrect perception that an important element of our Defense Nuclear Nonproliferation Program is lacking in the application of management controls related to oversight of contracts. The Administrator and NNSA take very seriously their responsibilities for internal controls and the appropriate management of funds. We are required to abide by the Department's guidelines and regulations, as well as specific NNSA implementation guidance, regarding the distribution of funds and program management. In addition to continuing our longstanding efforts to improve program and project management across the board, we intend to implement each of the recommendations noted in the draft GAO report either through the appropriate program element, NNSA's Head of Contracting Activity, or the Service Center.

NNSA has several areas of concern, however, with the GAO report that we believe GAO should consider. First, while the NA-24 program element was referred to repeatedly in this report, the audit was performed on the Global Initiatives for Proliferation Prevention (GIPP) program – not NA-24 as a whole, which includes over a dozen other programs. This audit, therefore, only covered the GIPP component of the NA-24 portfolio. GIPP consists of two program elements: the Initiatives for Proliferation Prevention (IPP), and the Nuclear Cities Initiative (NCI). GIPP contracts through several mechanisms including two international organizations, a government organized non-governmental organization, and our own procurement element. For those projects contracted



by NNSA, our procurement function maintains contract files that include eight of the nine categories of documents requested by GAO. Regrettably, the GIPP procurement officer was never contacted by GAO during its review and was therefore never requested to provide the documentation now cited to be lacking.

We believe that this report will mistakenly give the impression that management controls are weak or nonexistent for the GIPP program when, in fact, the opposite is true. Over the past six years, GIPP has enacted very stringent management controls, in response to GAO, Congressional, and White House guidance over the past several years. With respect to IPP, for example:

- Fixed-price contracts are negotiated with schedules of deliverables and costs prior to initiation of work;
- Technical monitors verify that deliverables comply with the contract specifications prior to payment;
- Funds are paid directly to individual bank accounts of scientists participating in the program; and,
- The Defense Contract Audit Agency (DCAA) performs independent annual audits. These independent DCAA audit findings for several years indicate that there are no cases in which funds have been lost or diverted, illustrating another measure of our internal control of funds.

For its part, NCI has:

- Mandated exhaustive project reviews prior to approving any project proposal, including independent review for projects exceeding \$500K;
- Instituted a Management Information System (MIS), with monthly financial reporting requirements; and,
- Tied disbursement of funds to achievement of specific and measurable milestones, and documented in the MIS and through quarterly and monthly financial reports.

We also want to highlight several statements in the report we believe to be misleading. For example, the report states that certain documentation was not provided for a project managed by Idaho National Laboratory (INL), including evidence that INL's technical reviewers had approved each deliverable and that NNSA had authorized payment to the Russian contractors. In fact, NNSA provided an e-mail certification from the INL technical reviewer for each of the fourteen projects identified; that certification indicates that the deliverable(s) had been reviewed and approved. In addition, the authorization for payment by NNSA for each project is in the form of signed task assignments, which accompany each invoice forwarded to our procurement office.

Second, GAO's statement that "there appears to be no linkage between contract work products, deliverables and invoices in the contract with the Foundation for

Russian American Economic Cooperation (FRAEC)" is inaccurate. In an August 17, 2005 meeting with GAO, NNSA thoroughly explained the explicit linkages between contract work products, deliverables and invoices in the FRAEC contract. NNSA manages and oversees the FRAEC contract directly, with no lab participation. FRAEC operates two facilities for GIPP and submits detailed invoices for their operating costs. FRAEC reports to NNSA on its activities on a monthly and quarterly basis. We maintain additional operational oversight of contractor activities through U.S. representation on the IDC Board of Directors and through regular meetings with IDC staff. Although the GAO correctly stated that there are no deadlines associated with each task in the FRAEC contract, the ongoing nature of FRAEC's responsibilities to operate the facilities does not lend itself to a deliverable-based set of deadlines of the sort found in other contracts. However, NNSA receives a detailed package on a monthly basis with a breakdown of FRAEC's operational costs and receipts. Those invoices are not accepted until all documents are reviewed and approved by our contracting officials. We maintain that the level of detail contained in the sample packages provided during the August 17 meeting constitutes a substantial audit trail, and consequently, we request that GAO reconsider its determination to the contrary, and to reconsider its portrayal of management controls over the FRAEC contract. In short, GIPP exercises extensive controls to ensure that funds are tracked and deliverables verified at multiple points during the implementation of a project.

Insofar as NA-25 is concerned, another program element mentioned in the draft report, we acknowledge the statement, "For the ninth contract, which involved comprehensive physical protection upgrades to Strategic Rocket Site in Russia, Oak Ridge National Laboratory did not provide complete documentation of approvals for deliverables or invoices," made by the GAO in this report. We believe that this was a misunderstanding on the part of the contractor.

The incomplete documentation referred to in the report was related to the technical reviewer's approval of deliverables. Since the technical personnel and financial personnel are co-located, approved deliverables were verbally communicated and personally delivered to these personnel in some cases, and followed up with signed invoices or email approvals, as applicable. Because the original request for information was misunderstood, Oak Ridge National Laboratory (ORNL) did not provide the backup documentation for those few deliverables that were, at first, verbally approved. Correspondence sent to the GAO auditor on August 16, 2005, contains the information originally submitted and the scanned copies noting approval on those deliverables/invoices that were not included in the original transmission. We hope that this response has cleared up any issues. There was no intention to withhold information and the information was readily available and accessible when requested.

In addition, NNSA is concerned with the accuracy of the description of NA-25's review of its management control process. As with other NNSA activities, our

projects follow guidance from work authorizations, adhere to the appropriate Federal Acquisition Regulations, and also follow the NA-25 Project Management Document, which is updated annually. During the annual update process, we conduct reviews of our program management controls and procedures for completeness. Additionally, we have an external method to review program management controls in the form of a Technical Survey Team (TST). The TST performs annual reviews on each project in order to determine that proper oversight has been exercised, that all guidance in the Project Management Document has been followed and that, in general, the proper management controls are in place. They look for good project management, check contracts, deliverables and payments, and also review the technical content of the projects. TST reports go directly to the appropriate Assistant Deputy Administrator (ADA) with issues identified that may need management attention.

NNSA will take the following specific actions related to the recommendations mentioned in the draft report:

- The Office of Defense Nuclear Nonproliferation, under which all three
 cited offices operate, is in the final stages of publishing its own Program
 Management Manual, which will establish execution, evaluation, and
 reporting requirements for all nonproliferation programs, including
 training and certification standards for all program managers.
- GIPP is updating and developing more extensive guidance detailing procedures and documentation, to be adhered to by all program participants.
- GIPP is developing a system to track projects on a deliverable level and record when payment has been initiated and paid. This system will ensure timely access to contracts information at Headquarters. This system will also allow for quick reference to project milestones, so progress can be closely tracked.
- We will conduct reviews of our management controls on an annual basis.
- The first GIPP review is currently underway as a part of the study to develop the project tracking system discussed above and will continue its DCAA audits on an annual basis.
- NA-23's first review will focus on the Earned Value Management System
 of the Seversk Project and is scheduled for the first quarter of FY 2006.
 This review will be led by the U.S. Army Corps of Engineers.
- NA-25 will continue to review its management controls through the process described above.

Should you have any questions related to this response, please contact Richard Speidel, Director, Policy and Internal Controls Management.

Sincerely,

Michael C. Kane Associate Administrator

for Management and Administration

cc: Deputy Administrator for Defense Nuclear Nonproliferation Senior Procurement Executive

Director, Service Center

GAO Contact and Staff Acknowledgments

GAO Contact	F. James Shafer (202) 512-6002
Staff Acknowledgments	In addition, Nancy Crothers, Greg Marchand, Judy Pagano, Daren Sweeney, and Kevin Tarmann made significant contributions to this report.

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