

## ESTABLISHING AN INTEGRATED PACKAGING PROGRAM IN A MULTI-CORPORATE ENVIRONMENT

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### ABSTRACT

Over the past several years the NNSA Defense Programs (DP) nuclear material packaging program (the Program) has worked to transform itself into a responsive, forward-looking program that assumes responsibility for providing an integration function for related Departmental packaging needs. This paper will describe, while underscoring the importance of government leadership, the development and implementation of management strategies employed to transition to a proactive packaging program. The Program operates in a multi-corporate environment providing funding for up to seven different government and contractor organizations each year to accomplish its mission. This multi-corporate structure presents extra complexity and unique challenges for effective program management.

The development of new packagings is a lengthy process and plans must be made well in advance of the need date. The paper will describe steps the Program has taken to identify needs and how it plans for new or modified packagings. The planning process implemented by the Program focuses not only on Defense Programs' needs but integrates with the rest of the DOE. Other DOE organizations also have packaging initiatives that are specific to their needs. This paper also will touch on the integration strategies that the Program employs to minimize duplication within the Department. The paper will describe the formulation of organizations such as the Secure Transportation and Packaging Steering Committee, the Secure Transportation Asset Advisory Board, the Packaging and Transportation Integrating Working Group, and the development of several packaging plans that integrate needs.

A new reality within the DOE is the need to consolidate and disposition nuclear materials and to "right-size" the nuclear weapons complex. The paper will discuss how the Program is seeking early identification of these needs and is preparing to address them in a timely and efficient manner. The main challenge is to identify the materials being considered for relocation and get enough detail on them in time to prepare Safety Analysis Report for Packaging amendments or design new packagings.

Through the implementation of various management strategies, the Program has developed into a very successful and responsive entity that is capable of meeting the extremely varied needs of the Office of Defense Programs while working collaboratively with other DOE Program Offices.

## **INTRODUCTION**

The United States Department of Energy (DOE) National Nuclear Security Administration (NNSA) is a semi-autonomous agency within the DOE and is responsible for national security missions. The NNSA Defense Programs (DP) Nuclear Material Packaging Program (the Program) has primary responsibility for assuring the availability of Type B shipping containers for shipment of radioactive materials of national security interests within the coast-to-coast network of national laboratories and production facilities known as the “weapons complex.” Most of these shipments are required by law to be carried within the NNSA Transportation Safeguards System. Government leadership is the key to successfully accomplishing the Program’s mission of assuring that the packaging and transportation elements of the multi-corporate weapons complex are responsive to rapidly changing requirements.

The authors have managed the Program over the past four years. An urgent need was identified to refine the Program’s focus, more accurately identify DP needs, and expand collaboration with other elements of the DOE if the Program was going to successfully meet the needs of the Office of Defense Programs. At that point the Program consisted of many older containers that were grandfathered under current regulations and no data was available to project the upcoming packaging needs. The authors determined that change was needed in order to be ready for the implementation of new packaging regulations, transport new contents, and maximize limited budgets and resources. Another important role was to ensure upper management remains aware of the importance of the packaging resources that are vital to the national security mission for execution of nuclear weapon dismantlement, life extension, production, and related experimental programs.

This paper describes some of the management tools utilized to transition into a proactive, responsive, forward-looking Program that successfully integrates Type B package acquisition and utilization for DOE national laboratories, production plants, major sites, and program offices. Close coordination and interaction with other DOE programs is critical in order to maximize the effectiveness of the Program’s limited resources and minimize duplication of effort. The authors have assumed an expanded role of serving as the lead for the Department in achieving the efficiencies of integration across other departmental programs. Expectations from the assumption of this cross-program integration function are limited since the NNSA packaging program manager has no budgetary or line management authority over other departmental programs.

## **MULTI-CORPORATE COMPLEXITIES**

The Program has primary responsibility for providing containers to meet the packaging and transportation needs of seven sites within the NNSA Defense Programs complex that are located coast-to-coast. Those sites are the Livermore National Laboratory, Nevada Test Site, Los Alamos National Laboratory, Sandia National Laboratories, Pantex Plant, Y-12 Plant, and Savannah River Site. The Kansas City Plant is involved in the Program as a procurement and fabrication specialist. Each of these sites has independent operating contracts with DOE resulting in unique management challenges associated with each location. Effective communications methodologies coupled with leadership skills are vital to successful management of these multi-corporate organizations that are spread across the country.

Certification of Defense Programs packages is conducted by the NNSA Service Center Package Certification Division (PCD). For various reasons, some packages are certified by the Nuclear Regulatory Commission (NRC). Further the Office of Environmental Management also has regulatory responsibilities for package certification. The Program must work effectively with all three package certification agencies.

The DOE has two other organizations that are substantially involved in fielding packages that may be utilized within the weapons complex. The NNSA Office of Fissile Materials Disposition is involved in the design, certification, and fabrication of two new containers. The Office of Environmental Management has a container program that addresses the packaging and transportation needs of non-weapons program materials. However, if these materials are special nuclear material, they must be transported within the secure TSS, and the Program will be involved.

## **INTEGRATION WITHIN THE OFFICE OF DEFENSE PROGRAMS**

Of course, implementation of these management strategies starts within the home Office of Defense Programs. Initial efforts were to collect information and perform analysis that gave insight into current packaging needs and to provide guidance for future plans. The planning phase of nuclear material special projects is a source of information that is critical to projecting future packaging needs. The Program proactively participates in initial phases of nuclear material special projects to ensure adequate lead time to respond to new container needs and to establish relationships with program offices to deal with real-time issues before they adversely affect program operations.

The authors developed mission and vision statements for the Program in order to communicate the direction and emphasis of the program to all the various customers and sites. The Program's mission is to supply and maintain Type A and B certified radioactive material packagings when and where they are required to transport weapons program fissile materials and components safely, securely, and efficiently. Type A packaging functions require a minimal effort on the part of the Program and will not be discussed in this paper. The Program's vision is to be an integrated program, working across the Department, identifying, developing, and fielding required packagings supporting NA-10 missions by maximizing collaborative opportunities with other NNSA and DOE Program Offices.

### **Defense Programs Packaging Plan**

A Defense Programs Packaging Plan was initiated in order to capture the goals, program requirements, milestones, and budgets. An appendix to the plan contains container project information sheets and provides the information on new containers that are needed and containers currently in the design process. This DP Packaging Plan is a living document and is periodically updated in order to provide the most current conclusions regarding the direction of NA-10 packaging development and management.

NA-10 Packaging Program requirements include ensuring certified packagings are available to meet transportation schedules, coordinating requirements with NA-11 and NA-12, assisting Site Managers in implementing site packaging and shipping programs that operate in compliance with DOE Order 461.1A, maintaining packagings at certified state of maintenance and readiness, maintaining inventory status of packagings in service, maintaining and operating an independent

certification authority, and providing policy and identifying policy changes to enhance efficiency while maintaining safety. The Defense Programs Packaging Plan is disseminated to all affected program and site offices as well as to upper management within the Office of Defense Programs.

#### Packaging and Transportation Integrating Working Group (PTIWG)

Another area that required attention was to ensure consistency of approach in implementing the Program at the various sites. One problem with the corporate environment is that each site can implement many of the requirements in the manner that best suits their particular organization. This can result in varying levels of rigor in the implementation of requirements. The authors realized that some type of forum was needed to discuss the various approaches to implementing the Program. The authors also noted that many lessons learned and best practices were not being communicated among the various sites.

A working group was formed in order to discuss approaches for implementation of requirements and to share lessons learned. This group is the NNSA focused Packaging and Transportation Integrating Working Group (PTIWG). The PTIWG conducts monthly conference calls to discuss packaging issues and implementation and also has a goal to have an annual meeting to identify the top two or three issues the group should focus on for the next year. The PTIWG has met with mixed success primarily due to the fact that many sites do not have a full-time dedicated packaging and transportation specialist and that the PTIWG contacts are often busy with other assignments in areas outside the packaging and transportation area. The authors recognize the need to negotiate additional site office support for this area.

#### Coordination with Defense Programs Special Initiatives

The Office of Defense Programs periodically conducts special planning studies or projects in order to address particular needs. Many of these studies affect container program planning (examples are the TA-18 mission relocation and the Sandia National Laboratories de-inventory project). Defense Programs is currently in the process of deciding what the future configuration of the nuclear weapons complex facilities will look like. This initiative will result in the need to move nuclear materials from site to site and will require container assets. The Program continually works through its management chain to make sure its requirements are addressed in the various planning options. Additionally, the Program works to become a team member as studies move from planning to implementation.

The Program continually requests characterization information on the materials identified for off-site movement in order to determine whether new contents need to be authorized for currently certified containers or if entirely new containers need to be developed. These specially focused needs are identified and included in the Defense Programs Packaging Plan.

#### Other Management Strategies

Many individual packaging projects require the involvement of multiple sites. The authors have learned that many times coordination between these sites does not naturally occur. The authors have instituted regularly scheduled conference calls, coupled with some face-to-face meetings, for selected projects to ensure all project participants understand their responsibilities and are meeting their deliverable schedules. These calls and meetings are led by the Defense Programs

Packaging Manager. This approach has minimized project delays and resulted in higher quality deliverables and was quite successful on the high visibility LANL TA-18 Mission Relocation Project.

## **INTEGRATION ACROSS NNSA AND OTHER DOE PROGRAM OFFICES**

The authors realized that in addition to employing management strategies within the Office of Defense Programs, the Program would need to interface and coordinate with the other DOE offices involved in Type B packaging and transportation within the secure TSS.

### Secure Transportation and Packaging Steering Committee (STPSC) and Secure Transportation Asset Advisory Board (STAAB)

The Program was instrumental in the development and maturation of two entities, the STPSC and the STAAB, which seek to address cross-program packaging and transportation issues. The Defense Programs Packaging Manager (co-author of this paper) is the chairman of the STPSC.

The charter for the STAAB states its principal mission is to balance the multiple DOE program mission requirements for secure transportation and safe packaging of nuclear materials to achieve the safe, secure, and efficient use of the Secure Transportation Assets. The STAAB uses the STPSC to create and promote an institutional capability that fosters DOE-wide integration and information exchange to modernize nuclear materials packaging systems. The STAAB also encourages integrated long-range planning for long-range transportation assets, Federal Agent staffing, and packaging needs among all of the nuclear programs of the DOE.

DOE Program Offices represented on the STAAB are the Offices of Environmental Management; Defense Programs; Naval Reactors; Nuclear Energy; Nonproliferation and National Security; Office of Science; and Office of Civilian Radioactive Waste Management. The Director of the Office of Secure Transportation or his representative also participates in all meetings of the STAAB and the STPSC. The NNSA Service Center PCD is also represented on the STAAB.

The STPSC supports the STAAB by providing a forum through which its members, working cooperatively, identify and recommend timely resolution of Type B packaging and secure transportation issues and needs. The STPSC also coordinates the work of special study groups chartered by the STAAB. The STPSC determines the numbers and types of Type B packages needed to meet current and long-term programmatic requirements and advises the STAAB in regard to the resources needed to develop, test, certify, procure, and maintain adequate packagings. The STPSC also identifies and resolves safety issues related to packaging and secure transportation. The STPSC provides a forum for the identification and coordination of time-sensitive, critical packaging and/or secure transportation issues requiring the attention of program management and coordinates with contractor and site representatives to assure effective dissemination of current information regarding secure transportation and packaging issues.

The Program's involvement in these two organizations has facilitated better Program scope definition and improved influence on new projects with other Program Offices to get greater benefits from the Department's limited resources.

### DOE Integrated Secure Transportation Packaging Plan

Through the STPSC, the Program led an effort to develop a DOE Integrated Secure Transportation Packaging Plan. This plan identified packaging needs from across the Department and provided a resource that the various Program Offices could use to coordinate packaging development activities. This plan will be periodically updated in order to help the STPSC and Program Offices identify packaging collaboration opportunities.

### Coordination with the Nuclear Materials Disposition and Consolidation Coordination Committee (NMDCCC)

The DOE established a Nuclear Materials Disposition and Consolidation Coordination Committee (NMDCCC) to address the management of nuclear materials across the DOE. The NMDCCC is developing disposition and consolidation plans for various nuclear materials. Containers are needed in order to implement the proposed material movements in the various plans. The Program, through the STPSC, has worked to maintain an interface with the NMDCCC in order to understand the possible packaging needs resulting from NMDCCC planning activities. Experience with the TA-18 relocation project highlights the need to identify characterization data for materials planned to be relocated as early in the process as possible in order to minimize any schedule delays resulting from container development. A good communication arrangement has been established; however, work is continually needed in order to ensure the communication continues.

### Update of DOE Order 461.1A

DOE Order 461.1A is the current DOE order setting out requirements and responsibilities for the packaging and transportation of materials of national security interest. The order was revised prior to the time the authors began managing the Program. The current order is in the process of revision to eliminate some ambiguities in responsibilities and processes, which should strengthen execution of the Program. This revision, if approved, will result in significant cost savings to the government.

## **OTHER MANAGEMENT STRATEGIES**

The Program has also instituted some other management strategies in an attempt to maximize its performance. When the authors took over the Program, the Y-12 plant was the main packaging design center for Defense Programs containers. Efforts were made to cultivate package design work at the Savannah River site to provide some new ideas and foster competition in the selection of the design agent for any new package. The Savannah River Site submitted new material concepts for package design and has been funded by the Program to explore new material innovations.

The Program evaluated the container refurbishment process at the Y-12 Plant that was instituted to meet the requirements of 10 CFR 71.87. A significant portion of Program funding is spent on container refurbishment activities. The Program manager worked with other Office of Defense Programs personnel and Y-12 federal and contractor personnel to review the refurbishment process. Some minor modifications were suggested; however, overall the refurbishment process was well managed.

The Program provides management focus on any special projects involving material movements that require multiple new contents for existing containers or the design of new containers. The Program works with all the affected sites and the NNSA Package Certification Division to form a project team that works together until the project is completed. This was demonstrated by the successful completion of the TA-18 relocation project at Los Alamos and will also be used to address the challenges posed by the planned de-inventory of the security Category I and II material from the Lawrence Livermore National Laboratory site.

## **CONCLUSIONS**

Since taking over management of the Program, the authors have instituted very proactive management strategies aimed at making the Program more effective and efficient. The Program operates in a unique multi-corporate environment consisting of multiple sites within a Department containing multiple independent programs. This organizational environment places many complex challenges for the efficient execution of Program responsibilities. Under these conditions, aggressive government leadership is paramount to success since contractor organizations can not be expected to manage each other.

Proper planning through the development of packaging plans identifying new container needs and the development of strategies to effectively utilize limited budgets and resources has enabled the Program to know what must be done. Coordination both within and outside the Office of Defense Programs through the creation of multi-site organizations such as the PTIWG and the STPSC and STAAB has enabled the Program to understand the future plans for activities requiring containers and also to integrate activities with organizations across the Department.

The Program has demonstrated that through proper leadership and application of effective management strategies a government program operating within a multi-corporate environment can work cooperatively and efficiently.