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Department of Energy
National Nuclear Security Administration
Washington DC 20585

ESCS-4350

April 6, 2012

EXEC-2012-000617

OFFICE OF THE ADMINISTRATOR

MEMORANDUM FOR THE SECRETARY

FROM:

THOMAS P. D'AGOSTINO
ADMINISTRATOR

A handwritten signature in black ink, appearing to read "T. P. D'Agostino", is written over the printed name of the administrator.

SUBJECT:

INFORMATION: Report to Congress on the Progress of Plutonium
Pit Production, Fiscal Year 2012, First Quarter

INFORMATION: The attached report is provided to you for information and is in response to Division C of the Consolidated Appropriations Act, 2008 [P.L. 110 – 161], which directed the National Nuclear Security Administration (NNSA) to provide quarterly reports on the progress of plutonium pit production at Los Alamos National Laboratory.

BACKGROUND: NNSA is pursuing the elimination of these reports from further Congressional reporting because the W88 pit production build was completed this fiscal year. Also, W88 pit activities met their objectives within the precursor Pit Manufacturing and Certification Campaign, which was disbanded in 2008. Follow-on pit manufacturing sustainment activities as well as other plutonium component capability reconstitution activities are currently scoped within a single Program in Directed Stockpile Work, the *Plutonium Sustainment Program*, for Fiscal Year 2012 and beyond.

Attachment





U.S. Department of
ENERGY

Quarterly Pit Production Report

Report to Congress
March 31, 2012

United States Department of Energy
Washington, DC 20585

Message from the Deputy Administrator for Defense Programs, National Nuclear Security Administration (NNSA)

The purpose of this report was to provide the quarterly and annual status of the production of W88 pits at Los Alamos National Laboratory. This report is being provided to the following Members of Congress:

- **The Honorable Daniel K. Inouye**
Chairman, Senate Committee on Appropriations
- **The Honorable Thad Cochran**
Ranking Member, Senate Committee on Appropriations
- **The Honorable Carl Levin**
Chairman, Senate Committee on Armed Services
- **The Honorable John McCain**
Ranking Member, Senate Committee on Armed Services
- **The Honorable Dianne Feinstein**
Chairman, Subcommittee on Energy and Water Development
Senate Committee on Appropriations
- **The Honorable Lamar Alexander**
Ranking Member, Subcommittee on Energy and Water Development
Senate Committee on Appropriations
- **The Honorable Jeff Sessions**
Ranking Member, Subcommittee on Strategic Forces
Senate Committee on Armed Services
- **The Honorable Ben Nelson**
Chairman, Subcommittee on Strategic Forces
Senate Committee on Armed Services
- **The Honorable Harold Rogers**
Chairman, House Committee on Appropriations
- **The Honorable Norman D. Dicks**
Ranking Member, House Committee on Appropriations

- **The Honorable Howard P. McKeon**
Chairman, House Committee on Armed Services
- **The Honorable Adam Smith**
Ranking Member, House Committee on Armed Services
- **The Honorable Michael Turner**
Chairman, Subcommittee on Strategic Forces
House Committee on Armed Services
- **The Honorable Loretta Sanchez**
Ranking Member, Subcommittee on Strategic Forces
House Committee on Armed Services
- **The Honorable Rodney P. Frelinghuysen**
Chairman, Subcommittee on Energy and Water Development, and Related Agencies
House Committee on Appropriations
- **The Honorable Peter J. Visclosky**
Ranking Member, Subcommittee on Energy and Water Development, and Related Agencies
House Committee on Appropriations

If you have any questions, please contact Mr. Clarence T. Bishop, NNSA Associate Administrator for External Affairs, at (202) 586-7332.

Sincerely,



DONALD L. COOK
Deputy Administrator
for Defense Programs

Executive Summary

This report for the first quarter of Fiscal Year (FY) 2012 provides some minor updates to the FY 2011 fourth quarter pit report. August 29, 2011 marks the completion of required W88 pit production at the Los Alamos National Laboratory (LANL). This report provides status of the additional spare pit, Build 62 and other pit-related activities. It also retains the retrospective summary of the W-88 pit production program.



Pit Production Report First Quarter FY 2012

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I. Legislative Language

This quarterly report on Pit Production is submitted in response to Division C of the Consolidated Appropriations Act, 2008 [P.L. 110 – 161].

NATIONAL NUCLEAR SECURITY ADMINISTRATION

“The NNSA Administrator is directed to provide quarterly reports to the Committees on Appropriations on pit production, with the first report due on April 1, 2008.”

II. Scope

Based on the Design Agency review, with concurrence from the NNSA Sea Launched Ballistic Missile Division Director, LANL completed the required number of W88 pit production builds in FY2011 that will provide War-Reserve (WR) quality surveillance replacements for the stockpile.

III. Status

During FY 2011, the Plutonium Sustainment Program completed all W88 pit production activities needed to meet the stockpile requirement (pits in production are identified by a build number). But, when Build 60 failed in FY 2011, program leadership opted to initiate an additional build (Build 62) as a contingency for an unlikely, but possible Build 61 failure or quality non-acceptance. Although Build 61 was diamond stamped in August 2011, successfully closing out the required W88 builds, program leadership wanted to proceed with Build 62 hoping to complete and deliver, with minimal incremental cost, another, beyond required, WR spare in FY 2012.

IV. First Quarter FY 2012 Pit-Related Accomplishments

- Build 62 underwent physical inspection and was entered into the LANL product quality inspection/acceptance pipeline.
- Continuing production support of the scaled experimental pit that will be used in early FY 2013 at Nevada Test Site.
- Continuing the transition of tooling, equipment, and processes to ensure that LANL can support the requirements for the next pit type.

V. Planned Activities for FY 2012

There are no planned activities to make WR quality pits for the stockpile, beyond completion of product inspection and acceptance of the additional W88 WR spare, Build 62.

VI. Final W88 Pit Production Summary and Conclusion

In June 2007, the first WR pit made since the Rocky Flats Plant closure was delivered to the Pantex Plant from LANL and that pit was delivered to the Department of Defense in September of that year. For the last four years, NNSA manufactured 40 production pit builds starting with Build 21 in FY07 and ending with Build 61 in FY 2011. Those builds resulted in 29 pits for the W88 program with 18 destined for the stockpile, seven for shelf life testing, two WR spares, and two for destructive testing.

Although Build 23 was the first one to achieve WR acceptance, it was by no means the beginning of the pit manufacturing story. NNSA committed significant resources and time to reconstitute the nation's pit manufacturing capability after the Rocky Flats Plant closure. In the mid 1990s, NNSA determined that the manufacturing capability would be located at LANL and the program spent several years establishing equipment, processes, and technicians capable of the mission. In FY 1998, the first engineering development unit (EDU) was produced that provided valuable information about capabilities and needed improvements. The EDU builds then led to a series of production development unit (PDU) builds that verified and validated the process's ability to make product of WR quality that eventually resulted in the first WR pit. In summary, it was approximately 15 years of dedicated commitment backed with significant expenditures from the beginning of development to the final W88 WR pit this year. The table below summarizes the W88 pit build program.

With the completion of the W88 production run required for the stockpile, NNSA and LANL do not have a firm requirement to produce WR quality pits for the stockpile in the near future. Current stockpile management planning indicates that WR quality pits of another seminal pit design, the W87, are needed in the FY 2019 – FY 2020 timeframe. To maintain the bare minimum capability until new WR pits are needed, the Plutonium Sustainment program will fund activities that exercise the complete pit manufacturing skill set yielding several pit-like objects per year. These builds will not be WR nor destined for the stockpile, though they will expand the manufacturing knowledge base of pit types in the active stockpile other than the W88, including the W87. Based on these facts and plans, NNSA submits this final report documenting the completion of the W88 WR pit program.

It is important to stress the significance of NNSA's plan and commitment to maintain the nation's pit manufacturing capability until future WR quality pits are required; this becomes especially important in light of the above discussion on the time and resources NNSA spent

reconstituting the capability over the last 15 years. The current situation is a tenuous one in which a lapse in commitment could easily translate to an unrecoverable loss of critical-skilled precision technicians and engineers, the irretrievable (non-repairable) loss of aged equipment, as well as a departure of dedicated leaders and managers with an understanding of the history and evolution of pit manufacturing. A lapse in commitment resulting in shutdown of manufacturing will demand unnecessary and expensive future expenditures to again reconstitute the base capability when such expenditures would be better invested to increase capacity beyond the base capability. As expressed in the 2010 Nuclear Posture Review, investments in responsive infrastructure allow the United States to shift away from large nuclear weapon stockpile numbers. Increased plutonium pit manufacturing capacity is an essential component for stockpile reduction while maintaining a deterrent and a key tenet to effective stockpile stewardship.

W88 Pit Build Summary (as of February 2012)					
Build	S/N	Initial Disposition	Life of Build	Final Disposition	Build Starts
EDUs and PDUs to reconstitute manufacturing capability and W88 WR processes					1998-2006
21	5376	Scrap			2007
22		Scrap			
23	9446	WR/SL	1	Diamond Stamp - Shelf Life	
24	1952	WR	2	Diamond Stamp - Stockpile	
25	7519	WR/SL	3	Diamond Stamp - Shelf Life	
26	2861	WR/SL	4	Diamond Stamp - Shelf Life	
27	8834	WR/SL	5	Diamond Stamp - Shelf Life	
28	3836	Scrap			
29		Scrap			
30	2051	WR/SL	6	Diamond Stamp - Shelf Life	
31	1925	WR/SL	7	Diamond Stamp - Shelf Life	
32	549	WR	8	Diamond Stamp - Stockpile	
33	4244	D-Test	9	D-Test	
34	1860	Shelf Life	10	Diamond Stamp - Stockpile	
35	1616	WR	11	Diamond Stamp - Stockpile	
36	5223	Scrap			
37	3878	Scrap			
38	3171	WR	12	Diamond Stamp - Stockpile	2008
39	4008	WR	13	Diamond Stamp - Stockpile	
40	3072	Shelf Life	14	Diamond Stamp - Shelf Life	
41	8478	WR	15	Diamond Stamp - Stockpile	

W88 Pit Build Summary (as of February 2012)					
Build	S/N	Initial Disposition	Life of Build	Final Disposition	Build Starts
42	1677	Scrap			
43	1913	D-Test	16	D-Test	
44	2477	WR	17	Diamond Stamp - Stockpile	
45	4352	WR	18	Diamond Stamp - Stockpile	2009
46	7402	PDU 2.1			
47	3852	PDU 2.2			
48	1781	PDU 2.3			
49	1259	WR	19	Diamond Stamp - Stockpile	
50	7600	WR	20	Diamond Stamp - Stockpile	
51	0823	WR	21	Diamond Stamp - Stockpile	
52	7099	PDU 1.1			2010
53	6459	WR	22	Diamond Stamp - Stockpile	
54	9097	WR	23	Diamond Stamp - Stockpile	
55	6430	WR	24	Diamond Stamp - Stockpile	
56	3911	WR	25	Diamond Stamp - Stockpile	
57	9201	WR	26	Diamond Stamp - Stockpile	
58	3572	WR	27	Diamond Stamp - Stockpile	2011
59	7328	WR	28	Diamond Stamp - WR spare	
60	8243	Scrap			
61	8646	WR	29	Diamond Stamp - WR spare	2012
62	5959	TBD	30	Planned WR spare	

D-Test – Destructive Test
 EDU – Engineering Development Unit
 PDU – Production Development Unit
 SL – Shelf Life
 WR – War Reserve