



memorandum

DATE: September 23, 2004

Audit Report Number: OAS-L-04-23

REPLY TO:

ATTN OF: IG-32 (A03SR041)

SUBJECT: Audit of the National Nuclear Security Administration's Tritium Production Plan
TO: Administrator, National Nuclear Security Administration

INTRODUCTION AND OBJECTIVE

The Department of Energy's National Nuclear Security Administration (NNSA) is responsible for maintaining and enhancing the nation's nuclear weapons stockpile, of which tritium is a vital component. The tritium in weapon reservoirs must be periodically replaced due to decay. Since halting production in 1988, the Department has met its tritium requirements through a recycling process at the Savannah River Site (SRS). Additionally, per agreement with the Department of Defense, NNSA has maintained a five-year reserve of tritium.

Nuclear weapons requirements are established in the Nuclear Weapon Stockpile Plan (Stockpile Plan) signed by the Secretary of Defense, the Secretary of Energy, and ultimately approved by the President of the United States. NNSA is responsible for producing the components, such as tritium, necessary to support the Stockpile Plan. The objective of this audit was to determine whether the Department's tritium production planning was consistent with the Stockpile Plan.

CONCLUSIONS AND OBSERVATIONS

As of May 2004, NNSA was planning to produce less than one third of the tritium needed to meet the weapons requirements of the Stockpile Plan. NNSA officials initially based tritium production levels on an anticipation that stockpile levels would be reduced in the near future because of the Moscow Treaty on Strategic Offensive Reductions (Moscow Treaty). The Moscow Treaty, signed by the President in May 2002, states that the U.S. and Russia will reduce their strategic nuclear warheads to a level of 1,700 to 2,200 by December 31, 2012.

During our audit, we identified certain aspects of NNSA's planning that could have presented challenges to meeting its tritium production goals, including: potentially delaying the startup of the Tritium Extraction Facility (Extraction Facility) from 5 to 10 years; and, not assuring the retention of qualified vendors with sufficient specialty expertise needed for tritium rod components.

Near the end of our audit, we learned that a new Stockpile Plan had been developed and that NNSA recognized the need to produce more tritium. Following the approval of the new Stockpile Plan in May 2004, the NNSA Deputy Administrator for Defense Programs gave his approval to initiate planning for production that will ultimately result in a three fold increase.

While a new production baseline has not been completed, action in that area has been initiated. For example, NNSA is coordinating with the companies providing fabrication of tritium rods, irradiation services, and transportation services to develop data needed to complete the new baseline. To address other production challenges, NNSA has initiated an independent assessment of tritium supply and demand that will be used in reconsidering a delay to the startup of the Extraction Facility. Additionally, NNSA now plans to track and manage risks to the tritium rod component supply chain according to the draft NNSA's Tritium Readiness Sub-program Implementation Plan dated July 30, 2004. Because NNSA now has a conceptual plan for tritium production levels in line with the Stockpile Plan, we are not making any formal recommendations.

SCOPE AND METHODOLOGY

The audit was performed between September 24, 2003, and August 25, 2004, at the Savannah River Site in Aiken, South Carolina; NNSA Headquarters in Washington D.C; Pacific Northwest National Laboratory in Richland, Washington; Tennessee Valley Authority Watts Bar Nuclear Plant in Spring City, Tennessee; and WesDyne International in Columbia, South Carolina. The scope of the audit included NNSA's tritium production planning from FY 2003 to FY 2030. To accomplish the audit objective, the audit team researched Federal and Departmental regulations applicable to tritium production planning and program management; reviewed prior Office of Inspector General and Government Accountability Office reports related to tritium and program management; reviewed the construction schedule for the Extraction Facility; evaluated tritium production schedules and the stockpile requirements plans; calculated the difference between planned production levels and Stockpile requirements; and reviewed contract documentation, analyzed funding efforts and cost estimates, and evaluated performance measures for the tritium production plan.

The audit was conducted in accordance with generally accepted Government auditing standards for performance audits and included tests of internal controls and compliance with laws and regulations to the extent necessary to satisfy the audit objective. Accordingly, we assessed internal controls and performance measures established under the *Government Performance and Results Act of 1993* related to tritium production requirements. NNSA had established some performance measures to demonstrate the capabilities for production and extraction of tritium in FY2007 by beginning irradiation of tritium producing rods in commercial reactors and completing the Extraction Facility. At the time of our audit, NNSA was making progress toward achieving these measures. Because our review was limited, it would

not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit. We performed tests sufficient to rely on computer-based data. The exit conference was waived by the Director, Policy and Internal Controls Management on September 21, 2004.



Rickey R. Hass
Assistant Inspector General
for Audit Operations
Office of Inspector General

cc: Director, Policy and Internal Controls Management, NA-66

DOE F 1325.8
(08-93)

United States Government

Department of Energy

memorandum

DATE: September 23, 2004
REPLY TO:
ATTN OF: IG-36 (A03SR041)
SUBJECT: Audit Report on "National Nuclear Security Administration's Tritium Production Plan"
TO: Team Leader, Audit Liaison Division, ME-100

Attached is the subject report. Because we are not making any formal recommendations, no actions are required to be tracked in the Department's audit tracking system.

We appreciate your cooperation.

Rickey R. Hass
Assistant Inspector General for Audit Operations
Office of Inspector General

Attachments

cc: Administrator for the National Nuclear Security Administration

DOE F 1325.8
(08-93)

United States Government

Department of Energy

memorandum

DATE: September 23, 2004

REPLY TO

ATTN OF: IG-36 (A03SR041)

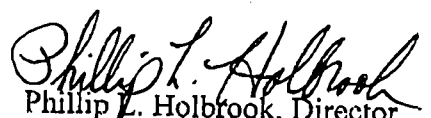
SUBJECT: Final Report Package for "National Nuclear Security Administration's Tritium Production Plan"

TO: Director, Planning and Administration

Attached is the required final report package on the subject audit. The pertinent details are:

1. Actual Staff days: N/A
Actual Elapsed days: 365
2. Names of OIG and/or contractor audit staff:
Assistant Director: Philip D. Beckett
Team Leader: Vincent V. LaBon
Auditor-in-Charge: Brittania C. Melton
Audit Staff: Pauline P. Stevens

3. Coordination with Investigations and Inspections:

Coordinated with Geoffrey Gray of Investigations on September 15, 2004Coordinated with Reginald France of Inspections on September 16, 2004

Phillip L. Holbrook, Director
Environmental Audits Division
Office of Inspector General

Attachments:

1. Final Report (3)
2. Monetary Impact Report
3. Audit Project Summary Report
4. Audit Database Information Sheet

MONETARY IMPACT OF REPORT NO.: OAS- I-04- 23

- 1. Title of Audit: National Nuclear Security Administration's Tritium Production Plan
- 2. Division: Environmental Audits Division
- 3. Project No.: A03SR041
- 4. Type of Audit:



Financial: _____ Performance: X
 Financial Statement _____ Economy and Efficiency _____
 Financial Related _____ Program Results X
 Other (specify type): _____

5.

FINDING		COST AVOIDANCE		QUESTIONED COSTS				MGT. POSITION	POTENTIAL BUDGET IMPACT
(A)	(B) Title	(C) One Time	(D) Recurring Amount Per Year	(E) Questioned	(F) Unsupported	(G) Unresolved	(H) Total (E)+(F)+(G)	(I) C=Concur N=Noncon U=Undec	(J) Y=Yes N=No
	Tritium Production Plan	None	None				None		No
TOTALS-ALL FINDINGS									

6. Remarks:

7. Contractor: _____
 8. Contract No.: _____
 9. Task Order No.: _____

10. Approvals:
 Division Director/Date: 
 Technical Advisor & Date: 

Office of the Inspector General (OIG)
 Audit Project Office Summary (APS)

Report run on: September 28, 2004 3:00 PM

Audit#: A03SR041 Ofc: SRA Title: NNSA TRITIUM PRODUCTION PLAN

**** Milestones ****

	Planned	End of Survey	Revised	Actual
Entrance Conference:.....	24-SEP-03		24-SEP-03	24-SEP-03
Survey:.....	22-NOV-03		09-FEB-04	09-FEB-04
Draft Report:.....				
Completed (With Report):..	30-MAY-04	09-FEB-04	22-OCT-04	23-SEP-04 (R)
-----Elapsed Days:	249	138	394	365
			Elap. Less Susp:	

Date Suspended: Date Terminated:
 Date Reactivated: Date Cancelled:
 DaysSuspended(Cur/Tot): () Report Number: OAS-L-04-23
 Rpt Title: Report Type: LTR LETTER REPORT
 AUDIT OF THE NATIONAL NUCLEAR SECURITY ADMINISTRATION'S TRITIUM PRODUCTION PLAN

**** Audit Codes and Personnel ****

Class: PER PERFORMANCE
 Program: SC3 Not Found
 MgtChall: 106 STOCKPILE STEWARDSHI
 Site: MSA MULTI-SITE AUDIT AD: 327 BECKETT
 SecMiss: NNS NATIONAL NUCLEAR SEC AIC: 728 MELTON
 PresInit: Not Found Team Ldr: 180 LABON
 Tech Adv: 432 GAMAGE

**** Task Information ****

Task No:
 Task Order Dt: CO Tech. Rep:
 Orig Auth Hrs: Orig Auth Costs:
 Current Auth: Current Auth Cost:
 Tot Actl IPR Hr: Tot Actl Cost:

**** Time Charges ****

Emp/Cont Name	Numdays	Last Date
BOLTON, II, F	8.0	18-SEP-04
LABON, V	28.8	18-SEP-04
STEVENS, P	155.0	18-SEP-04
MELTON, B	192.8	18-SEP-04
Total:	384.6	

Office of the Inspector General (OIG)
Audit Project Office Summary (APS)

Report run on: September 28, 2004 3:00 PM

**** Keywords ****

MOSCOW TREATY
NATIONAL NUCLEAR SECURITY ADMINISTRATION
NNSA
NUCLEAR WEAPONS STOCKPILE PLAN
STOCKPILE PLAN
TRITIUM
TRITIUM EXTRACTION FACILITY
TRITIUM PRODUCTION
TRITIUM READINESS
WEAPONS REQUIREMENT

**** Location Information ****

Loc
Code Description

**** Finding Information ****

<u>Find#</u>	<u>Title</u>	<u>Type</u>	<u>Amount</u>	<u>Yrs</u>	<u>Bud</u> <u>Imp</u>	<u>Mgt</u> <u>Pos</u>	<u>Dept</u> <u>Pos</u>	<u>Dept</u> <u>Amount</u>	<u>Dept</u> <u>Date</u>
--------------	--------------	-------------	---------------	------------	--------------------------	--------------------------	---------------------------	------------------------------	----------------------------

Office of the Inspector General (OIG)
Audit Project Office Summary (APS)

Report run on: September 28, 2004 3:00 PM

Page 3

Audit History

Audit No: A03SR041

History Date: 28-SEP-04

History Text:

PB/ ENTERED COMPLETED WITH REPORT DATE.

AUDIT DATABASE INFORMATION SHEET

1. Project No.: A03SR041
2. Title of Audit: National Nuclear Security Administration's Tritium Production Plan
3. Report No./Date: OAS-L-04-23: September 23, 2004
4. Management Challenge Area: 106
5. Presidential Mgmt Initiative: N/A
6. Secretary Priority/Initiative: NNS
7. Program Code: N/A
8. Location/Sites: NNSA Headquarters in Washington D.C.; Savannah River Site in Aiken, South Carolina; Pacific Northwest National Laboratory in Richland, Washington; Tennessee Valley Authority Watts Bar Nuclear Plant in Spring City, Tennessee; and WesDync International in Columbia, South Carolina
9. Finding Summary:

As of May 2004, NNSA was planning to produce less than one third of the tritium that would be needed to meet the weapons requirements of the Stockpile Plan. NNSA officials initially based tritium production levels on an anticipation that stockpile levels would be reduced in the near future because of the Moscow Treaty on Strategic Offensive Reductions (Moscow Treaty). The Moscow Treaty, signed by the President in May 2002, states that the U.S. and Russia will reduce their strategic nuclear warheads to a level of 1,700 to 2,200 by December 31, 2012. According to a top NNSA official, it would have been fiscally irresponsible to produce more tritium than would be needed to support the Moscow Treaty. However, it should be noted that the Moscow Treaty did not address the number of weapons to be held in reserve or lay out a schedule for implementation of the stockpile reduction. In addition, some aspects of NNSA's planning could have presented challenges to meeting its tritium production goals, including: potentially delaying the startup of the Tritium Extraction Facility (Extraction Facility) from 5 to 10 years; and, not assuring the retention of qualified vendors with sufficient specialty expertise needed for tritium rod components.

During the course of our audit, a new Stockpile Plan containing this key information was issued and NNSA recognized the need to produce more tritium. Following the approval of a new Stockpile Plan in May 2004, which incorporated weapons levels consistent with the Moscow Treaty, the NNSA Deputy Administrator for Defense Programs gave his approval to initiate planning that will triple tritium production. At this time, no new production baseline has been formally developed or approved. Currently, NNSA is coordinating with the companies providing fabrication of the tritium rods, irradiation services, and transportation services to complete the new baseline. To address the other production challenges, NNSA has initiated an independent assessment of tritium supply and demand that will be used in reconsidering a delay to the startup of the Extraction Facility. Additionally, NNSA now plans to track and manage risks to the tritium rod component supply chain according to the draft NNSA's Tritium Readiness Sub-program Implementation Plan dated July 30, 2004. Because NNSA now has a conceptual plan for tritium production levels in line with the Stockpile Plan, we are not making any formal recommendations.

10. Keywords:

Tritium
Tritium Production
Tritium Readiness
National Nuclear Security Administration
NNSA
Nuclear Weapons Stockpile Plan
Stockpile Plan
Moscow Treaty
Tritium Extraction Facility
Weapons requirement