



## Agency Priority Goal | Action Plan | FY 2023 – Q1

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# Nuclear Security

### Goal Leaders:

- Dr. Marvin Adams, Deputy Administrator for Defense Programs, National Nuclear Security Administration
- Michael A. Thompson, Principal Assistant Deputy Administrator for Stockpile Sustainment for Defense Programs, National Nuclear Security Administration
- Corey Hinderstein, Deputy Administrator for Defense Nuclear Nonproliferation, National Nuclear Security Administration
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# Goal Overview

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## Goal Statement

- Maintain and modernize the U.S. nuclear weapons stockpile and dismantle retired nuclear weapons, as directed by the President through the Nuclear Posture Review and enable further international nuclear nonproliferation and arms control progress.
- By September 30, 2023, complete 100 percent of annual B61-12 bomb deliveries required to support fiscal year (FY) 2022-2023 U.S. Air Force operational needs.
- By September 30, 2023, complete 100 percent of annual W88 Alt 370 warhead deliveries required to support FY 2022-2023 U.S. Navy operational needs.
- By September 30, 2023, replace 330 cesium irradiators with non-radioactive source-based technologies.

## Problem to Be Solved

- Achieve and sustain steady state production for the B61-12 and W88 Alt 370.
- While radioactive sources such as cesium-137 play an important role in commercial, medical, and research facilities, they also pose a “dirty bomb” risk and require compliance with regulatory requirements and enhanced security to prevent theft and/or use for malicious purposes.
- At the start of the Cesium Irradiator Replacement Project in 2015, approximately 750 cesium irradiators were in use in the United States. The Defense Nuclear Nonproliferation (DNN) Cesium Irradiator Replacement Project (CIRP), which started in 2015, has replaced 305 cesium irradiators to date.

## What Success Looks Like

- Delivery schedules for the B61-12 and the W88 Alt 370 are met.
- Thanks to the maturation of technology, viable X-ray alternatives to cesium-137 irradiators that reduce or eliminate the need for these requirements are now available and are in use at many facilities across the country.
- Replacing cesium-137 with non-radioactive source-based technologies enhances global security by preventing high-activity radioactive materials from being used in acts of terrorism.

## Goal target(s)

In the table below, please repeat the key metrics included in the goal statement (previous slide) that will be used to track progress.

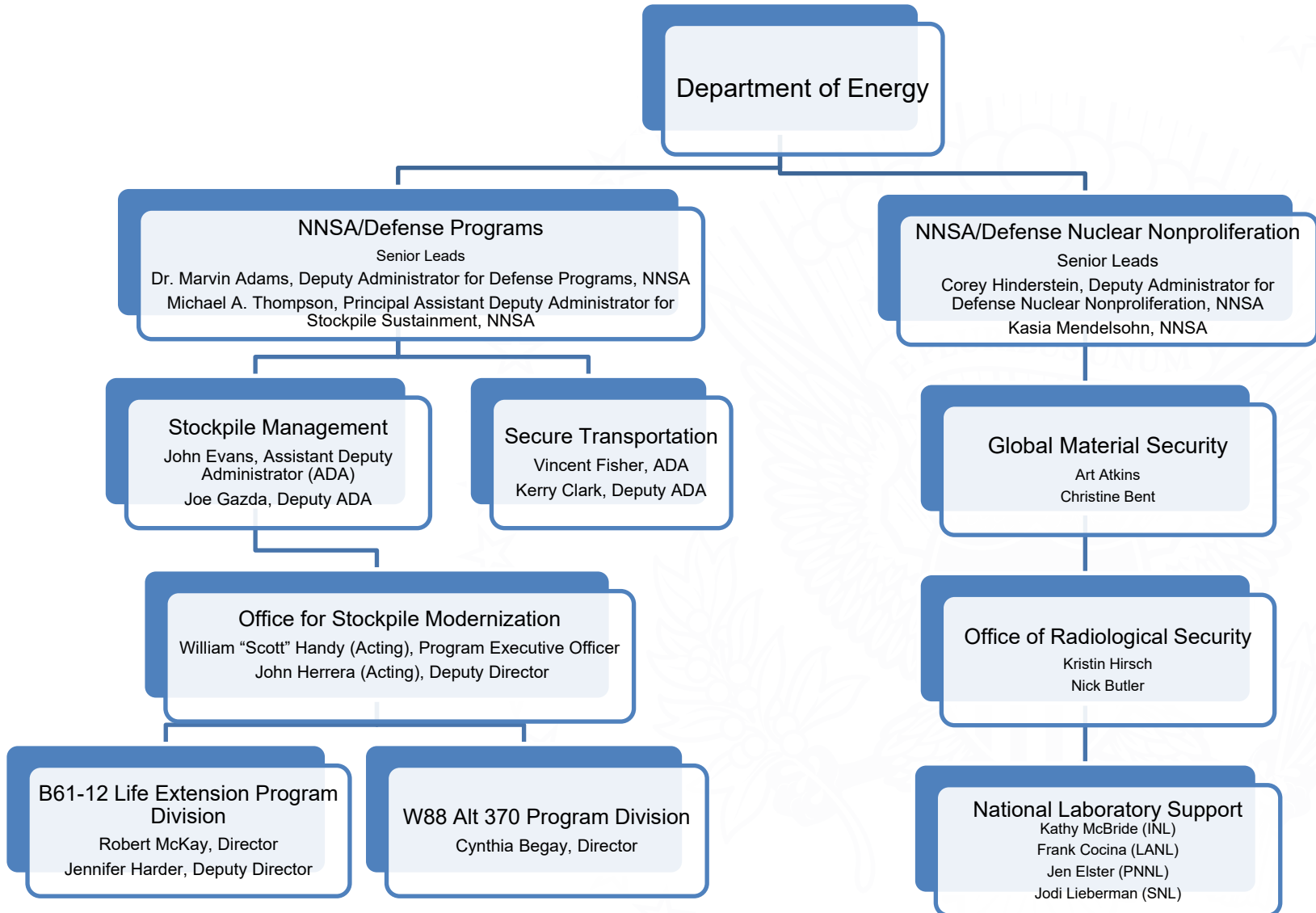
**Please update this column each quarter.**

Achievement Statement		Key Indicator(s)	Quantify Progress			Frequency
Repeat the achievement statement from the goal statement on the previous slide		A "key performance indicator" measures progress toward a goal target	These values enable us (and you!) to calculate percent complete for <u>any</u> type of target*			When is there new data?
By...	We will...	Name of indicator	Target value	Starting value**	Current value	Update cycle
09/30/23	Complete 100 percent of annual B61-12 bomb deliveries required to support FY 2022-2023 U.S. Air Force operational needs.	Percent of B61-12 bomb deliveries in FY 2022-2023	FY 2022:20% FY 2023:100%	0%	35%	Quarterly
09/30/23	Complete 100 percent of annual W88 Alt 370 warhead deliveries required to support FY 2022-2023 U.S. Navy operational needs.	Percent of W88 Alt 370 warhead deliveries in FY 2022-2023	FY 2022:20% FY 2023:100%	0%	51%	Quarterly
09/30/23	Replace 330 cesium irradiators with non-radioactive source-based technologies.	Additional cesium irradiator users volunteering for the CIRP program.	330	190	305	Quarterly

\* Even qualitative targets! If the target is to achieve a qualitative outcome, quantify progress this way: 1="Yes, we achieved it", 0="No, not yet"

\*\* As of 10/1/2021

# Goal Team



# Goal Strategies (B61-12 & W88 Alt 370)

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- As the Nation's nuclear weapons age and exceed their stockpile design life, NNSA must extend their life expectancy. NNSA will sustain and enhance the scientific capability to assess weapon performance and component and manufacturing technologies and supporting infrastructure required to execute the Stockpile Stewardship and Management Plan (SSMP) and ensure the safe and secure transportation of nuclear materials and weapons components.
- NNSA will also continue to invest in advancing existing capabilities and developing emerging capabilities to assure a strong nuclear deterrent now and into the future. With continued support, NNSA will ensure that the nuclear deterrent has the responsive, agile infrastructure needed to meet requirements.

# Goal Strategies (Cesium Irradiators)

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- The goal of the Cesium Irradiator Replacement Project (CIRP) is to eliminate risk of radiological terrorism by reducing and removing radioactive sources and source-based devices where feasible.
- The CIRP approach provides incentives to facilities interested in replacing cesium-137 irradiators with non-radioisotopic X-ray devices. These incentives include the safe removal and disposal of disused irradiators and payment of up to 50 percent towards the purchase price of new devices.
- The laboratory teams responsible for administering aspects of the project include individuals with extensive experience and access to both historical and new data.

# Goal Strategies (Cesium Irradiators)

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[External Factor]  
The COVID-19 pandemic and the need to focus on patient treatment could delay or prevent user participation in CIRP.

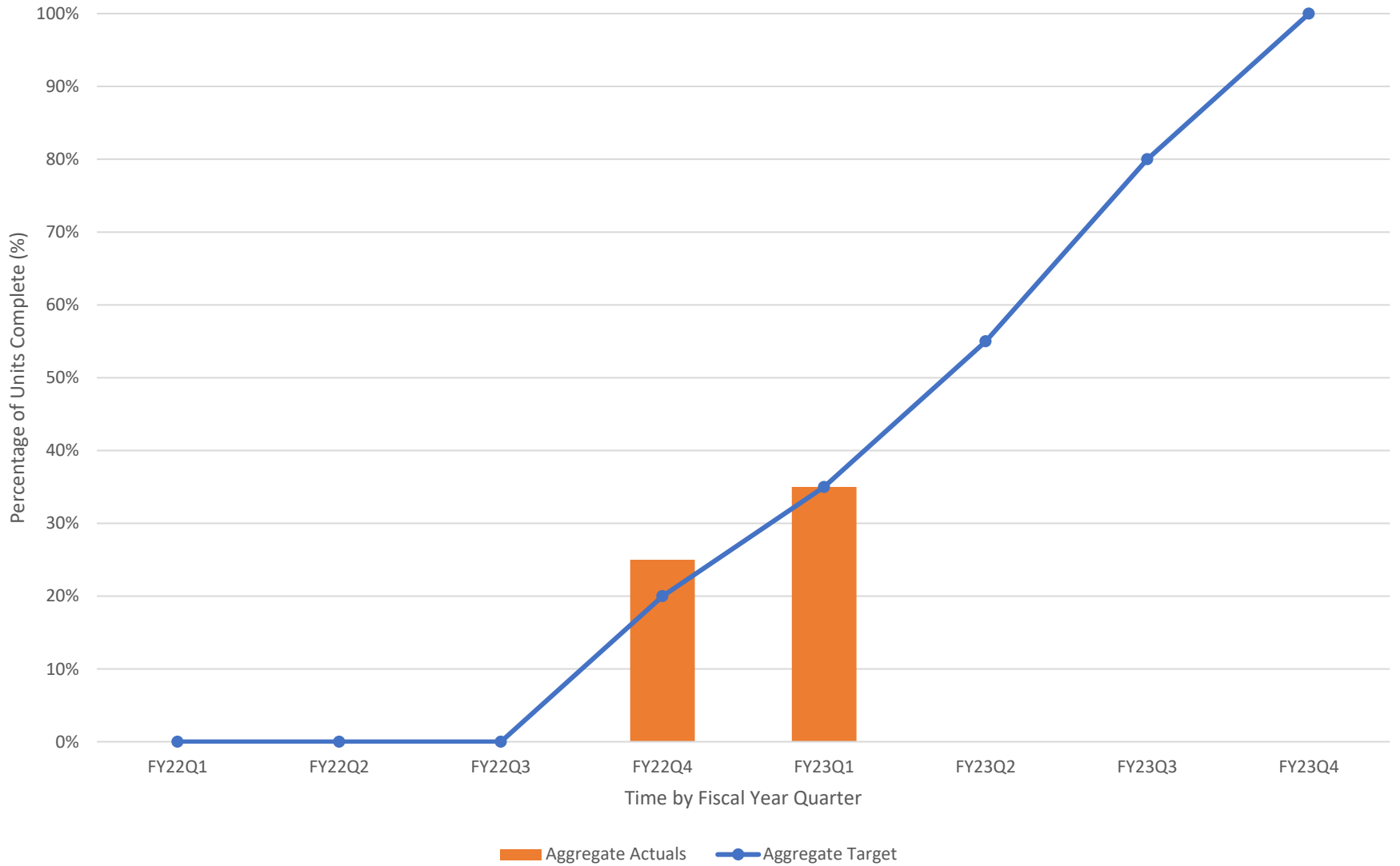
- [Mitigation] DNN will continue to conduct outreach to potential participants through industry meetings, targeted workshops, and one-on-one discussions.

[External Factor]  
COVID-19 related travel restrictions could prevent DNN from removing the disused cesium irradiators.

- [Mitigation] DNN will continue to implement a thorough COVID-19 tracking and safety program to ensure safety while continuing to replace and remove cesium irradiators.

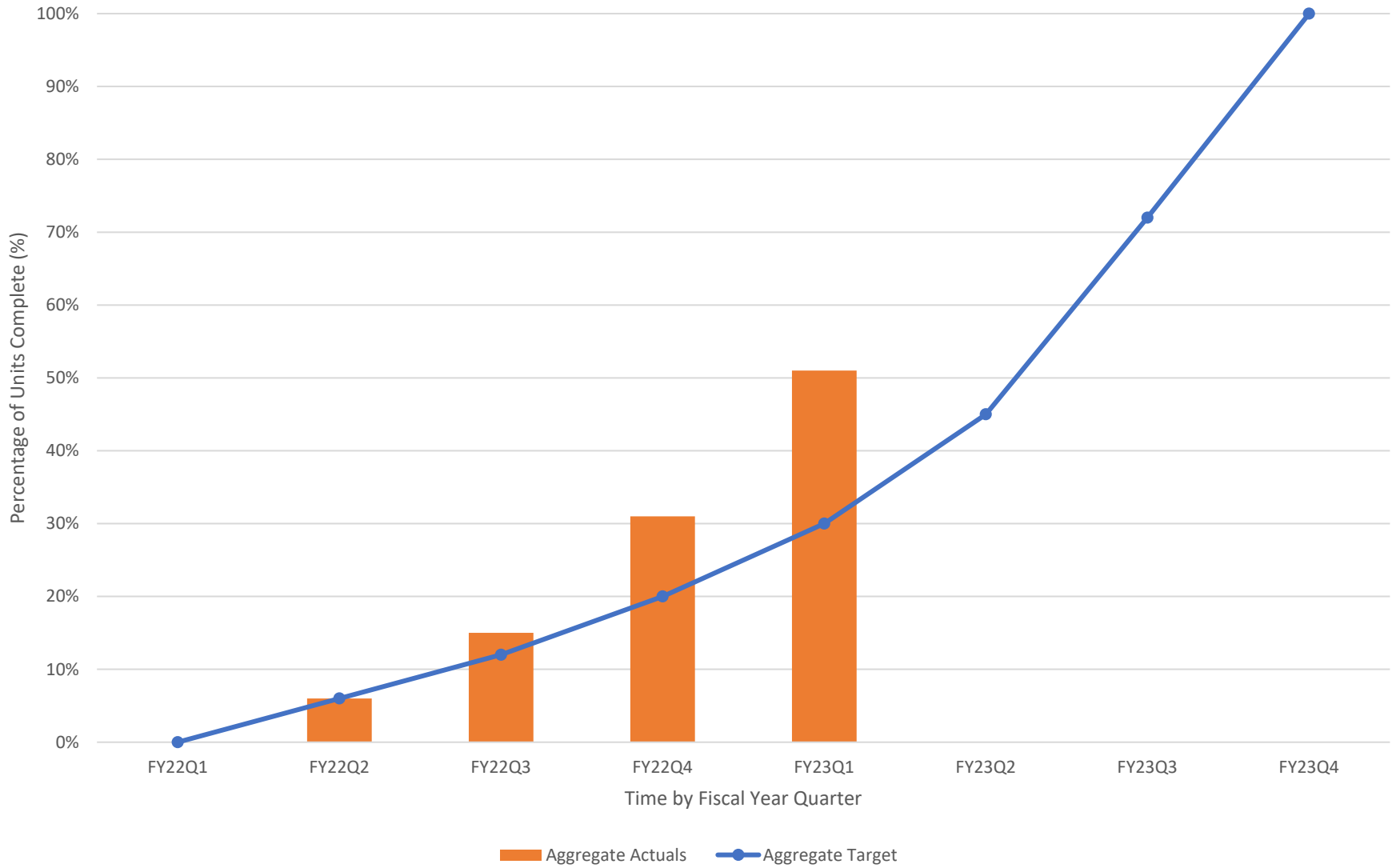


# Key Indicators (B61-12)

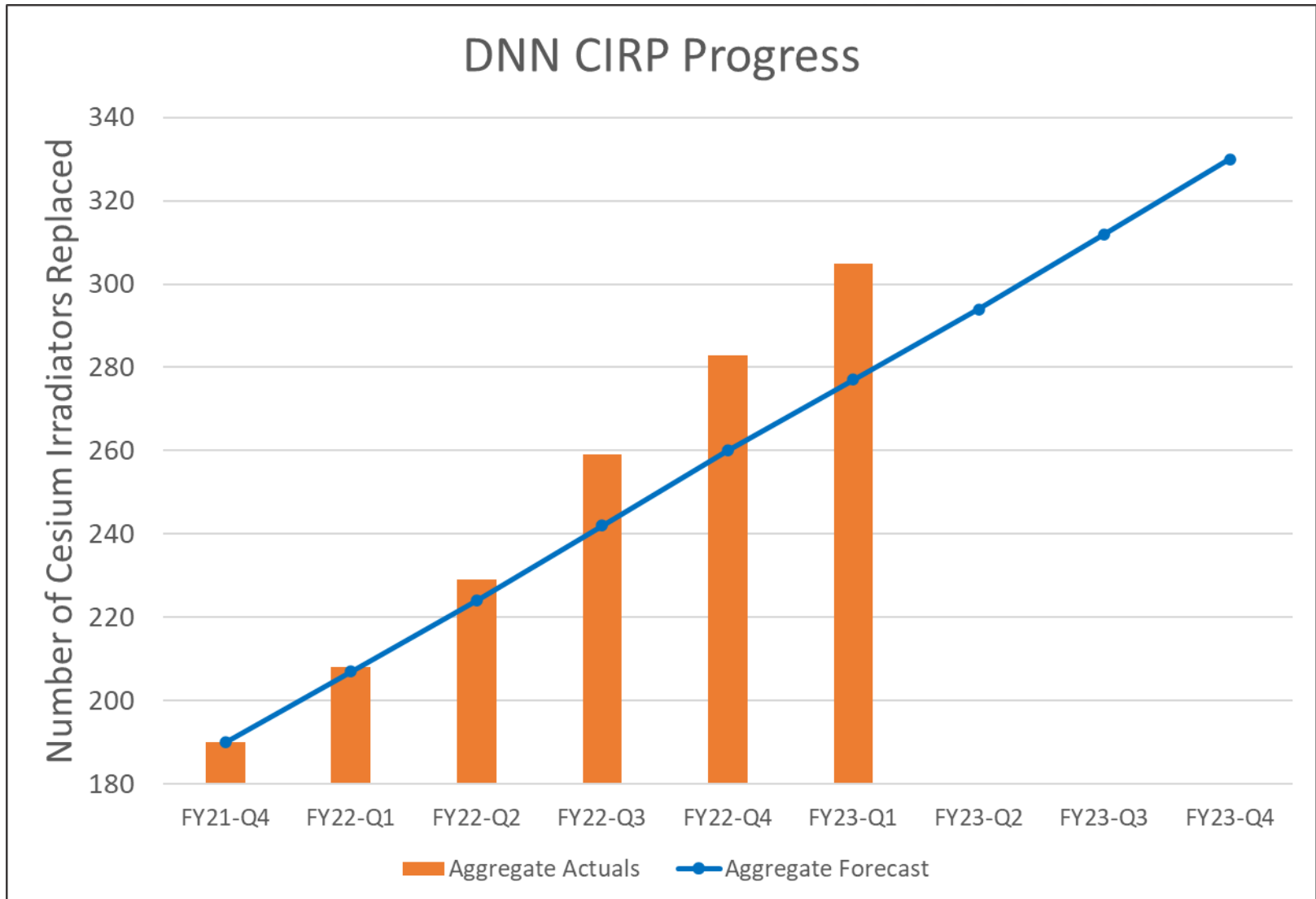




# Key Indicators (W88 Alt 370)



# Key Indicators (Cesium Irradiators)



# Key Milestones (B61-12)

- NNSA completed the B61-12 Life Extension Program First Production Unit November 23, 2021.
- In May 2022, the B61-12 completed production of the first Initial Operational Capability quantities.
- On June 29, 2022, the Nuclear Weapon Council formally accepted the B61-12 into the stockpile and authorized the program to enter Phase 6.6, *Full-Scale Production*.
- The Program delivered all FY 2022 U.S. Air Force commitments on schedule. (Deliveries were made in July, August, and September 2022).

## Milestone Summary

Key Milestone	Milestone Due Date <i>[e.g., Q2, FY 2017]</i>	Milestone Status <i>[e.g., Complete, On-Track, Missed]</i>	Change from last quarter <i>[optional column]</i>	Owner <i>[optional column]</i>	Comments <i>[Provide discussion of Progress, changes from last update, Anticipated Barriers or other Issues Related to Milestone Completion]</i>
Deliver 20 percent of B61-12 bomb deliveries in FY 2022 required to support FY 2022-2023 U.S. Air Force operational needs.	Q4, FY 2022	Complete		NNSA, Defense Programs	
Deliver the remaining 80 percent of B61-12 bomb deliveries in FY 2023 required to support FY 2022-2023 U.S. Air Force operational needs.	Q4, FY 2023	On-Track		NNSA, Defense Programs	

# Key Milestones (W88 Alt 370)

- On July 1, 2021, NNSA achieved the First Production Unit for the W88 Alt 370 Program.
- The W88 Alt 370 was formally accepted into the stockpile by the Nuclear Weapons Council in December 2021.
- On June 29, 2022, the NWC authorized the program to enter Phase 6.6, *Full-Scale Production*.
- The Program delivered all FY 2022 Navy commitments on schedule. (Deliveries were made in January, April, June, July, and September 2022).
- The Program delivered all Q1 FY 2023 Navy commitments on schedule. (Deliveries were made in October, November, and December.)

## Milestone Summary

Key Milestone	Milestone Due Date <i>[e.g., Q2, FY 2017]</i>	Milestone Status <i>[e.g., Complete, On-Track, Missed]</i>	Change from last quarter <i>[optional column]</i>	Owner <i>[optional column]</i>	Comments <i>[Provide discussion of Progress, changes from last update, Anticipated Barriers or other Issues Related to Milestone Completion]</i>
Deliver 20 percent of W88 Alt 370 warhead deliveries in FY 2022 required to support FY 2022-2023 U.S. Navy operational needs.	Q4, FY 2022	Complete		NNSA, Defense Programs	
Deliver the remaining 80 percent of W88 Alt 370 warhead deliveries in FY 2023 required to support FY 2022-2023 U.S. Navy operational needs.	Q4, FY 2023	On-Track		NNSA, Defense Programs	Production forecast supports fulfillment of remaining warhead deliveries.

# Key Milestones (Cesium Irradiators)

- To monitor progress toward the goal, the program will identify key milestone at the end of each year.

Milestone Summary					
Key Milestone	Milestone Due Date	Milestone Status	Change from last quarter	Owner	Comments
	<i>[e.g., Q2, FY 2017]</i>	<i>[e.g., Complete, On-Track, Missed]</i>	<i>[optional column]</i>	<i>[optional column]</i>	<i>[Provide discussion of Progress, changes from last update, Anticipated Barriers or other Issues Related to Milestone Completion]</i>
Replace 70 irradiators in FY 2022	Q4, FY 2022	Complete		NNSA, Defense Nuclear Nonproliferation	Exceeded FY22 target by 23 replacements
Replace 70 irradiators in FY 2023	Q4, FY 2023	On-Track		NNSA, Defense Nuclear Nonproliferation	