Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-452

T-AO 205 John Lewis Class Fleet Replenishment Oiler (T-AO 205 Class)

As of FY 2020 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Sensitivity Originator

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Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)

Program Information

Program Name
T-AO 205 John Lewis Class Fleet Replenishment Oiler (T-AO 205 Class)

DoD Component
Navy

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Date Assigned: March 27, 2015

References

SAR Baseline (Production Estimate)

Assistant Secretary of the Navy (Research, Development & Acquisition) (ASN(RDA)) Approved Acquisition Program Baseline (APB) dated September 15, 2017

Approved APB

Assistant Secretary of the Navy (Research, Development & Acquisition) (ASN(RDA)) Approved Acquisition Program Baseline (APB) dated September 15, 2017

Mission and Description

The JOHN LEWIS (T-AO 205) Class Fleet Replenishment Oiler program will recapitalize the current T-AO 187 Class for a total of 17 ships. The United States requires military forces that can operate for long periods of time around the globe. The Navy can provide sustained military presence and operations far from the Continental United States (CONUS) with little or no reliance on host governments for basing and logistics in the immediate vicinity of operations. Such operations rely primarily on the ships of the Navy's Combat Logistics Force (CLF) for the resupply of fuel, food, ammunition, repair parts, and other consumables during underway (at-sea) replenishment events.

A critical supply item provided by the CLF, in both peace and war, is fuel to power the ships and aircraft of the Fleet. All of the Navy's CLF ships can provide fuel to Navy ships. However, the CLF's 15 T-AO 187 Class, because of their capacity and their numbers, are the backbone of the fuel delivery system. The existing CLF consists of 29 ships: two Fast Combat Support Ships (T-AOE 6 Class) built primarily to service aircraft carriers and their accompanying surface combatants; 12 Dry Cargo/Ammunition Ships (T-AKE 1 Class) built to replace the Navy's single product ammunition ships and dry cargo ships; and 15 T-AO 187 Class. Those T-AO 187s represent about half of the number of CLF ships, but account for 75 percent of the CLF's at-sea refueling capacity.

Executive Summary

Program Highlights Since Last Report

PB 2020 moves one of the two FY 2021 ships to FY 2020. This profile provides opportunity for potential nominal material savings, flexibility to level load production, and mitigate impacts associated with the Graving Dock incident at General Dynamics, National Steel and Shipbuilding Company (NASSCO) shipyard with the Expeditionary Mobile Base (ESB) 5.

The procurement funding breach is the result of increased procurement quantity from 17 to 20 ships. An APB revision to update the total quantity will be completed prior to the next SAR submission.

An Assistant Secretary of the Navy (Research, Development, and Acquisition) ADM dated May 16, 2018, initiates adding two ships to the existing contract and increases the LRIP quantity from six to eight ships.

The NASSCO Graving Dock catastrophic failure of the flood gate occurred on July 11, 2018 and flooded ESB 5. The incident had no direct impact to delivery of the Lead Hull, however, there is a delay in the second and third ships' contractual delivery dates and the fourth through sixth ships' planned delivery dates. There is no delay in the fourth through sixth ships' contractual delivery dates.

Detail Design is substantially complete and Production Readiness Review was successfully conducted on August 7, 2018. Report and Certification of Production Readiness was sent to Congress on September 6, 2018.

Lead Ship Start of Construction began September 20, 2018 as planned, and is 10% complete.

The Follow-on ship, T-AO 206, was awarded on March 28, 2018. The third and fourth ships, T-AO 207 and T-AO 208, were awarded on December 27, 2018. The fifth ship, T-AO 209, Advance Procurement was also awarded on December 27, 2018. The plan is to award the sixth ship in FY 2020.

There are no significant software-related issues with this program at this time.

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	**Significant Development Description**
May 2012	At the Navy Gate 2 Review, held May 2, 2012, the Navy approved development of a CDD and recommended a class of 17 ships based on a new design T-AO 205 Class with capabilities similar to the T-AO 187 Class.
October 2012	On October 10, 2012, the Navy Gate 3 Review approved the T-AO 205 Class threshold capabilities.
April 2013	An ADM was signed by USD (AT&L) on April 5, 2013, which approved T-AO 205 Program entry at Milestone B.
June 2015	The CDD was approved and validated by the Chief of Naval Operations and JROC on June 16, 2015.
June 2015	Per a USD(AT&L) Memorandum dated June 18, 2015, the Navy received approval to release the Request for Proposals and pursue a combined Milestone B/C.
September 2015	Per a USD(AT&L) Memorandum dated September 11, 2015, the MDA for the T-AO 205 program will be the Assistant Secretary of the Navy (Research, Development, and Acquisition) ASN (RD&A).
June 2016	The Navy awarded a competitive, block buy contract for six ships to General Dynamics, National Steel and Shipbuilding Company on June 30, 2016. The Lead Ship, T-AO 205 was awarded on June 30, 2016.
June 2017	FY 2017 Advance Procurement (AP) for the second ship, T-AO 206 awarded on June 5, 2017.
September 2017	The T-AO 205 Class combined Milestone B/C approval ADM was signed by ASN (RDA) on September 22, 2017.
December 2017	FY 2018 AP for the third ship, T-AO 207 was awarded on December 5, 2017.
March 2018	FY 2018 Full Funding for the second ship, T-AO 206 awarded on March 28, 2018.
May 2018	Per a Navy (Research, Development, and Acquisition) ASN (RD&A) ADM dated May 16, 2018, add two ships to existing contract and increase the LRIP quantity from 6 to 8 ships.
December 2018	FY 2019 Full Funding for the third and fourth ships, T-AO 207 and T-AO 208, and FY 2019 AP for the fifth ship, T-AO 209, was awarded on December 27, 2018.

Threshold Breaches

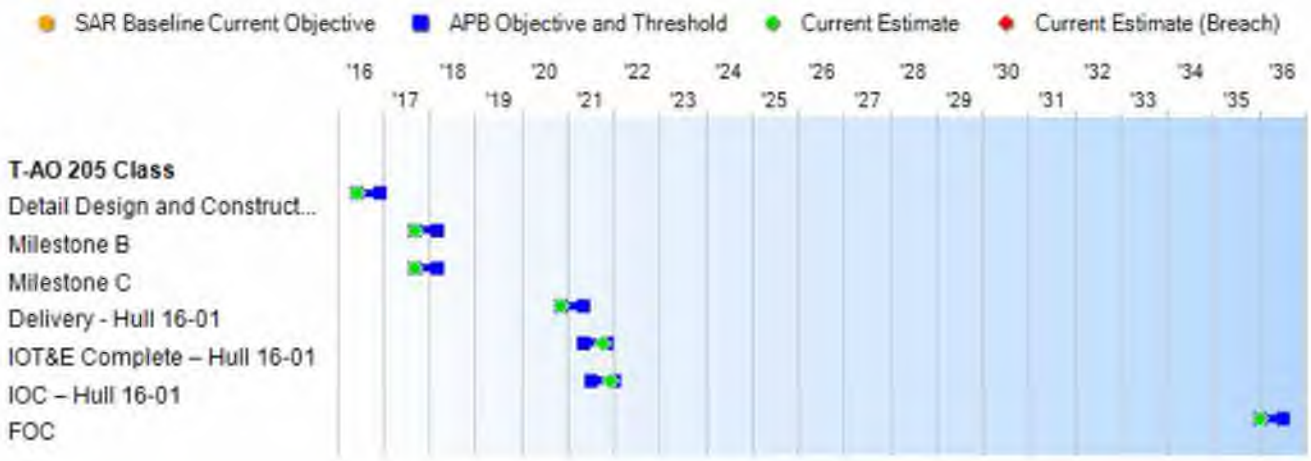
APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☑
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☐
	APUC	☐

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Explanation of Breach

The procurement funding breach is the result of increased procurement quantity from 17 to 20 ships. An APB revision to update the total quantity will be completed prior to the next SAR submission.

Schedule



Schedule Events				
Events	**SAR Baseline Production Estimate**	**Current APB Production Objective/Threshold**		**Current Estimate**
Detail Design and Construction (DD&C) Award	Jun 2016	Jun 2016	Dec 2016	Jun 2016
Milestone B	Sep 2017	Sep 2017	Mar 2018	Sep 2017
Milestone C	Sep 2017	Sep 2017	Mar 2018	Sep 2017
Delivery - Hull 16-01	Nov 2020	Nov 2020	May 2021	Nov 2020
IOT&E Complete – Hull 16-01	May 2021	May 2021	Nov 2021	Oct 2021
IOC – Hull 16-01	Jul 2021	Jul 2021	Jan 2022	Dec 2021
FOC	Jan 2036	Jan 2036	Jul 2036	Jan 2036

Change Explanations

None

Notes

The Current Estimate for the IOC and IOTE align with the June 16, 2015 approved CDD which states the IOC will be achieved 14 months after delivery and when the first ship completes Post Delivery Test & Trials (PDT&T), IOT&E, Final Contract Trials (FCT), and Post Shakedown Availability (PSA). The current PM estimate for these dates are consistent with previous T-Ship actual post-delivery trials durations and IOC.

The IOC objective date reflects the CDD objective date of 8 months after delivery.

The FY 2016 Lead Hull delivery date is November 2020 and Obligation Work Limiting Date (OWLD) is January 2022.

Acronyms and Abbreviations

DD&C - Detail Design & Construction
IOT&E - Initial Operation Test & Evaluation

Performance

Performance Characteristics					
SAR Baseline Production Estimate	**Current APB Production Objective/Threshold**		**Demonstrated Performance**	**Current Estimate**	
Fueling at Sea					
Cargo Fuel Capacity: 156,000 barrels	Cargo Fuel Capacity: 156,000 barrels	(T=O) Cargo Fuel Capacity: 156,000 barrels	TBD	Cargo Fuel Capacity: 162,164 barrels	(Ch-1)
Force Protection					
Protect Personnel: Permanent crew-served weapon mounts and ready service lockers for use by on-watch EST Secure stowage for weapons and ammunitions when ship's force security teams and ESTs are not on watch PPE as routinely provided to MSC crews to include Force Protection and CBR PPE for a minimum of 125 personnel	Protect Personnel: Permanent crew-served weapon mounts and ready service lockers for use by on-watch EST Secure stowage for weapons and ammunitions when ship's force security teams and ESTs are not on watch PPE as routinely provided to MSC crews to include Force Protection and CBR PPE for a minimum of 125 personnel	(T=O) Protect Personnel: Permanent crew-served weapon mounts and ready service lockers for use by on-watch EST Secure stowage for weapons and ammunitions when ship's force security teams and ESTs are not on watch PPE as routinely provided to MSC crews to include Force Protection and CBR PPE for a minimum of 125 personnel	TBD	Protect Personnel: Permanent crew-served weapon mounts and ready service lockers for use by on-watch EST Secure stowage for weapons and ammunitions when ship's force security teams and ESTs are not on watch PPE as routinely provided to MSC crews to include Force Protection and CBR PPE for a minimum of 125 personnel.	
Survivability					
Vulnerability: Built to commercial standards and meet OPNAVINST 9070.1. The ship will comply with ABS SVR Classification and USCG certification. Vessel will be double-hulled.	Vulnerability: Built to commercial standards and meet OPNAVINST 9070.1. The ship will comply with ABS SVR Classification and USCG certification. Vessel will be double-hulled.	(T=O) Vulnerability: Built to commercial standards and meet OPNAVINST 9070.1. The ship will comply with ABS SVR Classification and USCG certification. Vessel will be double-hulled.	TBD	Vulnerability: Built to commercial standards and meet OPNAVINST 9070.1. The ship will comply with ABS SVR Classification and USCG certification. Vessel will be double-hulled.	
Sustainment					
Materiel Availability: 0.74 (Note: Equivalent to 270 Days RFT per year) Operational Availability: 0.95 (Note: Operational AOCF resulting in C4	Materiel Availability: 0.74 (Note: Equivalent to 270 Days RFT per year) Operational Availability: 0.95 (Note: Operational AOCF resulting in C4	(T=O) Materiel Availability: 0.74 (Note: Equivalent to 270 Days RFT per year) Operational Availability: 0.95 (Note: Operational AOCF	TBD	Materiel Availability: 0.78 (Note: Equivalent to 270 Days RFT per year) Operational Availability: 0.96 (Note: Operational AOCF resulting in C4	(Ch-2)

CASREPs	CASREPs	resulting in C4 CASREPs		CASREPs	
Net-Ready					
Perform Logistics and Combat Services: 0.999 Supply Operational Forces: 0.999 Synchronize Supply of Fuel in Joint Operations Area: 0.999 Transmit/Receive Bandwidth between ship and external network: Unclassified (NIPR), Classified (SIPR), and Coalition Network 3.36 Mbps Situational Information; Movement Procedures: Moderate (1-10 sec.) Distribution Data; Transport Data; Coordination Data; Delivery Information: Moderate (1-10 sec.)	Perform Logistics and Combat Services: 0.999 Supply Operational Forces: 0.999 Synchronize Supply of Fuel in Joint Operations Area: 0.999 Transmit/Receive Bandwidth between ship and external network: Unclassified (NIPR), Classified (SIPR), and Coalition Network 3.36 Mbps Situational Information; Movement Procedures: Moderate (1-10 sec.) Distribution Data; Transport Data; Coordination Data; Delivery Information: Moderate (1-10 sec.)	Perform Logistics and Combat Services: 0.99 Supply Operational Forces: 0.99 Synchronize Supply of Fuel in Joint Operations Area: 0.99 Transmit/Receive Bandwidth between ship and external network: Unclassified (NIPR), Classified (SIPR), and Coalition Network 0.889 Mbps Situational Information; Movement Procedures: Slow (10 sec. to 10 min.) Distribution Data; Transport Data; Coordination Data; Delivery Information: Up to 60 min. (10 min. to 60 min.)	TBD	Perform Logistics and Combat Services: 0.999 Supply Operational Forces: 0.999 Synchronize Supply of Fuel in Joint Operations Area: 0.999 Transmit/Receive Bandwidth between ship and external network: Unclassified (NIPR), Classified (SIPR), and Coalition Network 3.36 Mbps Situational Information; Movement Procedures: Moderate (1-10 sec.) Distribution Data; Transport Data; Coordination Data; Delivery Information: Moderate (1-10 sec.).	
Energy					
Unrefueled range of 6,000 Nautical Miles at 20 knots while consuming no more than 14,000 barrels of fuel	Unrefueled range of 6,000 Nautical Miles at 20 knots while consuming no more than 14,000 barrels of fuel	(T=O) Unrefueled range of 6,000 Nautical Miles at 20 knots while consuming no more than 14,000 barrels of fuel	TBD	Unrefueled range of 6,000 Nautical Miles at 20 knots while consuming no more than 13,000 barrels of fuel.	(Ch-3)
Training					
Crew familiarization training on ship-specific systems and equipment to be provided by Contractor MSC will provide training based on CIVMAR) Competency Matrices. Training will occur at MSC-sponsored facilities and at other facilities to include Navy training sites, other Government agencies, maritime schools, and other commercial	Crew familiarization training on ship-specific systems and equipment to be provided by Contractor MSC will provide training based on CIVMAR) Competency Matrices. Training will occur at MSC-sponsored facilities and at other facilities to include Navy training sites, other Government agencies, maritime schools, and other commercial	(T=O) Crew familiarization training on ship-specific systems and equipment to be provided by Contractor MSC will provide training based on CIVMAR) Competency Matrices. Training will occur at MSC-sponsored facilities and at other facilities to include Navy training sites, other Government agencies, maritime schools, and	TBD	Crew familiarization training on ship-specific systems and equipment to be provided by Contractor MSC will provide training based on CIVMAR) Competency Matrices. Training will occur at MSC-sponsored facilities and at other facilities to include Navy training sites, other Government agencies, maritime schools, and other commercial	

vendors.	vendors.	other commercial vendors.		vendors.
Space, Weight, Power, and Cooling (SWaP-C)				
Specific SWaP-C margins for future (non-contiguous) installations of self-defense systems to include: -CIWS or SeaRAM -ATTDS - ADC Weight: 68,000 lbs. Space: 500 sq. ft. – above deck space 500 sq. ft. – below deck space Power: 100kW Cooling: 40kW	Specific SWaP-C margins for future (non-contiguous) installations of self-defense systems to include: -CIWS or SeaRAM -ATTDS - ADC Weight: 68,000 lbs. Space: 500 sq. ft. – above deck space 500 sq. ft. – below deck space Power: 100kW Cooling: 40kW	(T=O) Specific SWaP-C margins for future (non-contiguous) installations of self-defense systems to include: -CIWS or SeaRAM -ATTDS - ADC Weight: 68,000 lbs. Space: 500 sq. ft. – above deck space 500 sq. ft. – below deck space Power: 100kW Cooling: 40kW	TBD	Specific SWaP-C margins for future (non-contiguous) installations of self-defense systems to include: -CIWS or SeaRAM -ATTDS - ADC Weight: 68,000 lbs. Space: 500 sq. ft. – above deck space 500 sq. ft. – below deck space Power: 100kW Cooling: 40kW.

Requirements Reference

JROC reviewed and validated the CDD for the Fleet Replenishment Oiler on June 16, 2015

Change Explanations

(Ch-1) Cargo Fuel Capacity changed from 156,000 barrels to 162,164 barrels per the estimate at the Production Readiness Review (PRR).
(Ch-2) Materiel Availability changed from 0.74 to 0.78 and Operational Availability changed from 0.95 to 0.96 per the analysis at PRR.
(Ch-3) Unrefueled range of 6,000 Nautical Miles at 20 knots changed from while consuming no more than 14,000 barrels of fuel, to while consuming no more than 13,000 barrels of fuel per the estimate at PRR.

Acronyms and Abbreviations

ABS - American Bureau of Shipping
ADC - Acoustic Device, Countermeasure
Aocf - Operational Availability Based on Critical Failures
ATTDS - Anti-Torpedo Torpedo Defense System
C4 CASREPs - Category 4 Casualty Reports
CBR - Chemical, Biological, Radiological
CIVMAR - Civilian Mariner
CIWS - Close-In Weapon System
EST - Expeditionary Security Team
kW - kilowatts
lbs. - pounds
Mbps - Megabits per second
min. - minutes
MSC - Military Sealift Command
NIPR - Non-Secure Internet Protocol Router
OPNAVINST - Operational Navy Instruction
PPE - Personnel Protective Equipment
PRR - Production Readiness Review
RFT - Ready For Tasking
SeaRAM - Rolling Airframe Missile
sec. - seconds
SIPR - Secret Internet Protocol Router
sq. ft. - square feet
SVR - Steel Vessel Rules
SWaP-C - Space, Weight, Power and Cooling
T=O - Threshold equals Objective
USCG - United Stated Coast Guard

Track to Budget

RDT&E

Appn	BA	PE
Navy 1319	04	0408042N

Project	Name	
0900	Future Combat Logistics Force Development	(Sunk)
Notes:	FY 2011 & FY 2012 National Defense Sealift Fund (NDSF) R&D Project 3417.	

Appn	BA	PE
Navy 1319	04	0603564N

Project	Name	
3375	Ship Prel Design & Feasibility Studies	(Sunk)
3375C	Ship Prel Design & Feasibility Studies	(Sunk)
Notes:	FY 2014 Congressional Transfer from NDSF R&D to RDT&E.	
C253	Ship Prel Design & Feasibility Studies	(Sunk)

Appn	BA	PE
Navy 1319	05	0605327N

Project	Name
3375	T-AO 205 Class Development

Procurement

Appn	BA	PE
Navy 1611	05	0204441N

Line Item	Name	
5025	T-AO Fleet Oiler	
5110	Outfitting	(Shared)
5300	Completion of Prior Year Shipbuilding Programs	(Shared)

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2016 $M			BY 2016 $M	TY $M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	67.6	67.6	74.4	67.4	67.3	67.3	67.2
Procurement	8475.9	8475.9	9323.5	10216.3[1]	10664.3	10664.3	12855.9
Flyaway	--	--	--	10216.3	--	--	12855.9
Recurring	--	--	--	10107.7	--	--	12739.8
Non Recurring	--	--	--	108.6	--	--	116.1
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	8543.5	8543.5	N/A	10283.7	10731.6	10731.6	12923.1

[1] *APB Breach*

Current APB Cost Estimate Reference

Component Cost Position (CCP) signed by Deputy Assistant Secretary of the Navy (Cost and Economics) dated August 18, 2017

Cost Notes

No cost estimate for the program has been completed in the previous year.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	0	0	0
Procurement	17	17	20
Total	17	17	20

Cost and Funding

Funding Summary

Appropriation Summary FY 2020 President's Budget / December 2018 SAR (TY$ M)									
Appropriation	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
RDT&E	57.5	1.3	1.7	5.4	1.3	0.0	0.0	0.0	67.2
Procurement	1280.4	1085.3	1079.6	558.4	562.4	1136.0	594.8	6559.0	12855.9
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2020 Total	1337.9	1086.6	1081.3	563.8	563.7	1136.0	594.8	6559.0	12923.1
PB 2019 Total	1345.8	1086.8	600.1	1110.3	565.3	1137.5	576.4	3878.2	10300.4
Delta	-7.9	-0.2	481.2	-546.5	-1.6	-1.5	18.4	2680.8	2622.7

Quantity Summary FY 2020 President's Budget / December 2018 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	2	2	2	1	1	2	1	9	20
PB 2020 Total	0	2	2	2	1	1	2	1	9	20
PB 2019 Total	0	2	2	1	2	1	2	1	6	17
Delta	0	0	0	1	-1	0	0	0	3	3

Cost and Funding

Annual Funding By Appropriation

Annual Funding 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2011	--	--	--	--	--	--	4.5
2012	--	--	--	--	--	--	12.9
2013	--	--	--	--	--	--	25.0
2014	--	--	--	--	--	--	11.1
2015	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	1.0
2017	--	--	--	--	--	--	1.1
2018	--	--	--	--	--	--	1.9
2019	--	--	--	--	--	--	1.3
2020	--	--	--	--	--	--	1.7
2021	--	--	--	--	--	--	5.4
2022	--	--	--	--	--	--	1.3
Subtotal	--	--	--	--	--	--	67.2

Annual Funding 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2016 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2011	--	--	--	--	--	--	4.7
2012	--	--	--	--	--	--	13.4
2013	--	--	--	--	--	--	25.6
2014	--	--	--	--	--	--	11.2
2015	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	1.0
2017	--	--	--	--	--	--	1.1
2018	--	--	--	--	--	--	1.8
2019	--	--	--	--	--	--	1.2
2020	--	--	--	--	--	--	1.5
2021	--	--	--	--	--	--	4.8
2022	--	--	--	--	--	--	1.1
Subtotal	--	--	--	--	--	--	67.4

Annual Funding 1611 | Procurement | Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2016	1	572.1	--	102.1	674.2	--	674.2
2017	--	73.1	--	--	73.1	--	73.1
2018	1	533.1	--	--	533.1	--	533.1
2019	2	1071.3	--	14.0	1085.3	--	1085.3
2020	2	1079.6	--	--	1079.6	--	1079.6
2021	1	558.4	--	--	558.4	--	558.4
2022	1	562.4	--	--	562.4	--	562.4
2023	2	1136.0	--	--	1136.0	--	1136.0
2024	1	594.8	--	--	594.8	--	594.8
2025	1	769.4	--	--	769.4	--	769.4
2026	1	697.2	--	--	697.2	--	697.2
2027	1	699.9	--	--	699.9	--	699.9
2028	1	686.1	--	--	686.1	--	686.1
2029	1	694.7	--	--	694.7	--	694.7
2030	1	710.1	--	--	710.1	--	710.1
2031	1	724.6	--	--	724.6	--	724.6
2032	1	739.7	--	--	739.7	--	739.7
2033	1	755.5	--	--	755.5	--	755.5
2034	--	33.1	--	--	33.1	--	33.1
2035	--	33.3	--	--	33.3	--	33.3
2036	--	8.2	--	--	8.2	--	8.2
2037	--	7.2	--	--	7.2	--	7.2
Subtotal	20	12739.8	--	116.1	12855.9	--	12855.9

Annual Funding 1611 | Procurement | Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	BY 2016 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2016	1	539.2	--	96.2	635.4	--	635.4
2017	--	67.5	--	--	67.5	--	67.5
2018	1	482.5	--	--	482.5	--	482.5
2019	2	950.7	--	12.4	963.1	--	963.1
2020	2	939.3	--	--	939.3	--	939.3
2021	1	476.3	--	--	476.3	--	476.3
2022	1	470.3	--	--	470.3	--	470.3
2023	2	931.3	--	--	931.3	--	931.3
2024	1	478.1	--	--	478.1	--	478.1
2025	1	606.3	--	--	606.3	--	606.3
2026	1	538.6	--	--	538.6	--	538.6
2027	1	530.1	--	--	530.1	--	530.1
2028	1	509.5	--	--	509.5	--	509.5
2029	1	505.7	--	--	505.7	--	505.7
2030	1	506.8	--	--	506.8	--	506.8
2031	1	507.0	--	--	507.0	--	507.0
2032	1	507.4	--	--	507.4	--	507.4
2033	1	508.1	--	--	508.1	--	508.1
2034	--	21.8	--	--	21.8	--	21.8
2035	--	21.5	--	--	21.5	--	21.5
2036	--	5.2	--	--	5.2	--	5.2
2037	--	4.5	--	--	4.5	--	4.5
Subtotal	20	10107.7	--	108.6	10216.3	--	10216.3

Cost Quantity Information 1611 | Procurement | Shipbuilding and Conversion, Navy		
Fiscal Year	**Quantity**	**End Item Recurring Flyaway (Aligned With Quantity) BY 2016 $M**
2016	1	596.4
2017	--	--
2018	1	526.1
2019	2	999.8
2020	2	995.7
2021	1	476.1
2022	1	472.4
2023	2	982.4
2024	1	483.7
2025	1	512.6
2026	1	512.3
2027	1	509.9
2028	1	507.1
2029	1	501.5
2030	1	504.7
2031	1	508.9
2032	1	510.4
2033	1	507.7
2034	--	--
2035	--	--
2036	--	--
2037	--	--
Subtotal	20	10107.7

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	9/22/2017	5/16/2018
Approved Quantity	6	8
Reference	Milestone B/C approval ADM.	Navy (Research, Development, and Acquisition) ASN (RD&A) ADM.
Start Year	2016	2016
End Year	2022	2022

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the award of a block buy contract with General Dynamics, National Steel and Shipbuilding Company (GD NASSCO) for six ships.

LRIP quantity increased per the Navy (Research, Development, and Acquisition) ASN (RD&A) ADM dated May 16, 2018 and subject to appropriation for hulls 7 and 8 (FY 2021 and FY 2022).

Foreign Military Sales

None

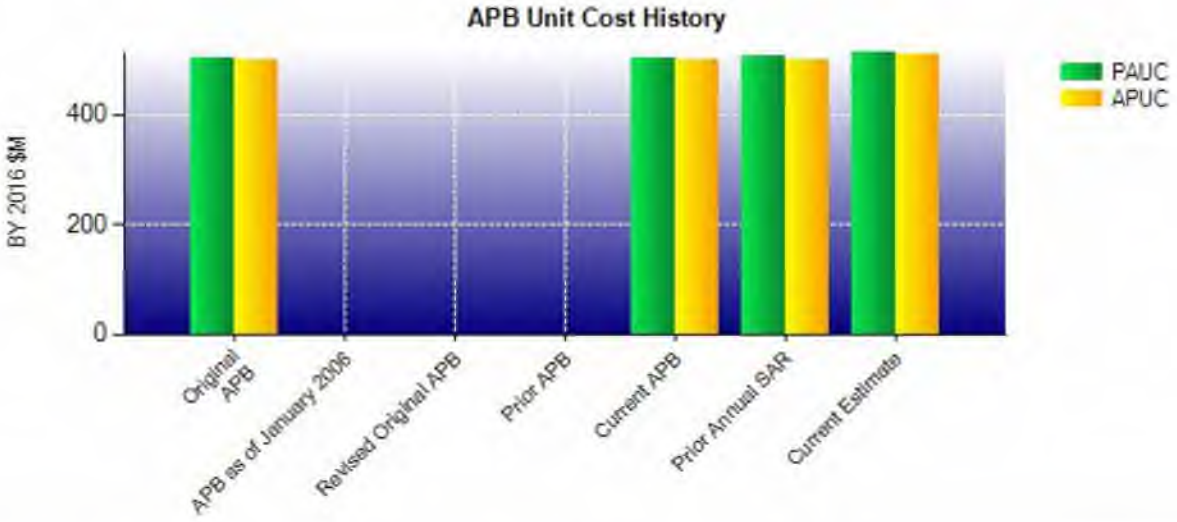
Nuclear Costs

None

Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2016 $M Current UCR Baseline (Sep 2017 APB)	BY 2016 $M Current Estimate (Dec 2018 SAR)	% Change
Program Acquisition Unit Cost			
Cost	8543.5	10283.7	
Quantity	17	20	
Unit Cost	502.559	514.185	+2.31
Average Procurement Unit Cost			
Cost	8475.9	10216.3	
Quantity	17	20	
Unit Cost	498.582	510.815	+2.45

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2016 $M Original UCR Baseline (Sep 2017 APB)	BY 2016 $M Current Estimate (Dec 2018 SAR)	% Change
Program Acquisition Unit Cost			
Cost	8543.5	10283.7	
Quantity	17	20	
Unit Cost	502.559	514.185	+2.31
Average Procurement Unit Cost			
Cost	8475.9	10216.3	
Quantity	17	20	
Unit Cost	498.582	510.815	+2.45



APB Unit Cost History					
Item	Date	BY 2016 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	Sep 2017	502.559	498.582	631.271	627.312
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	Sep 2017	502.559	498.582	631.271	627.312
Prior Annual SAR	Dec 2017	505.135	501.153	605.906	601.947
Current Estimate	Dec 2018	514.185	510.815	646.155	642.795

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
631.271	3.300	12.179	-18.290	-0.400	18.095	0.000	0.000	14.884	646.155

Current SAR Baseline to Current Estimate (TY $M)									
Initial APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
627.312	3.300	12.773	-18.290	-0.400	18.100	0.000	0.000	15.483	642.795

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	N/A	Sep 2017	Sep 2017
Milestone C	N/A	N/A	Sep 2017	Sep 2017
IOC	N/A	N/A	Jul 2021	Dec 2021
Total Cost (TY $M)	N/A	N/A	10731.6	12923.1
Total Quantity	N/A	N/A	17	20
PAUC	N/A	N/A	631.271	646.155

Cost Variance

Summary TY $M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	67.3	10664.3	--	10731.6
Previous Changes				
Economic	-0.1	-91.3	--	-91.4
Quantity	--	--	--	--
Schedule	--	-285.3	--	-285.3
Engineering	--	--	--	--
Estimating	+0.1	-54.6	--	-54.5
Other	--	--	--	--
Support	--	--	--	--
Subtotal	--	-431.2	--	-431.2
Current Changes				
Economic	+0.1	+157.3	--	+157.4
Quantity	--	+2137.4	--	+2137.4
Schedule	--	-80.5	--	-80.5
Engineering	--	-8.0	--	-8.0
Estimating	-0.2	+416.6	--	+416.4
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-0.1	+2622.8	--	+2622.7
Total Changes	-0.1	+2191.6	--	+2191.5
CE - Cost Variance	67.2	12855.9	--	12923.1
CE - Cost & Funding	67.2	12855.9	--	12923.1

Summary BY 2016 $M				
Item	**RDT&E**	**Procurement**	**MILCON**	**Total**
SAR Baseline (Production Estimate)	67.6	8475.9	--	8543.5
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	+90.5	--	+90.5
Engineering	--	--	--	--
Estimating	+0.1	-46.8	--	-46.7
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+0.1	+43.7	--	+43.8
Current Changes				
Economic	--	--	--	--
Quantity	--	+1462.8	--	+1462.8
Schedule	--	-49.3	--	-49.3
Engineering	--	-7.4	--	-7.4
Estimating	-0.3	+290.6	--	+290.3
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-0.3	+1696.7	--	+1696.4
Total Changes	-0.2	+1740.4	--	+1740.2
CE - Cost Variance	67.4	10216.3	--	10283.7
CE - Cost & Funding	67.4	10216.3	--	10283.7

Previous Estimate: December 2017

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+0.1
Refinement of Current Program Estimate for the Lead Hull's Test and Evaluation events and associated support services. (Estimating)	-0.3	-0.2
RDT&E Subtotal	-0.3	-0.1

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+157.3
Total Quantity variance resulting from an increase of three ships from 17 to 20. (Subtotal)	+1352.2	+1971.2
Quantity variance resulting from an increase of three ships from 17 to 20. (Quantity)	(+1399.6)	(+2040.4)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(-39.8)	(-58.1)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(-7.6)	(-11.1)
Additional Quantity variance for three ships' worth of Outfitting and Post Delivery. (Quantity)	+63.2	+97.0
Acceleration of procurement buy profile from two ships in FY 2021 to two ships in FY 2020. (Schedule)	0.0	-11.5
Additional Schedule variance reflects revised Outfitting and Post Delivery phasing for ships in the FYDP. (Schedule)	-9.5	-10.9
FY 2018 Omnibus Appropriations Bill (H.R. 1625) for engineering services cost growth. (Engineering)	-7.4	-8.0
Adjustment for current and prior escalation. (Estimating)	-30.6	-33.8
Revised estimate for ship procurement beyond the FYDP. (Estimating)	+155.7	+220.3
Revised estimate for Outfitting and Post Delivery funding beyond the FYDP. (Estimating)	+173.1	+241.2
Procurement Subtotal	+1696.7	+2622.8

(QR) Quantity Related

~~(U//FOUO)~~ Contracts

Contract Identification	
Appropriation:	Procurement
Contract Name:	Detail Design & Construction of T-AO 205
Contractor:	General Dynamics, National Steel and Shipbuilding Company (GD NASSCO)
Contractor Location:	2798 Harbor Drive San Diego, CA 92113-3650
Contract Number:	N00024-16-C-2229/1
Contract Type:	Fixed Price Incentive(Firm Target) (FPIF)
Award Date:	June 30, 2016
Definitization Date:	June 30, 2016

(U//~~FOUO~~) Contract Price

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
(b)(4)							

~~(U//FOUO)~~ Target Price Change Explanation

(b)(4)

~~(U//FOUO)~~ Contract Variance

Item	Cost Variance	Schedule Variance
(b)(4)		

~~(U//FOUO)~~ Cost and Schedule Variance Explanations

(b)(4)

Contract Identification

Appropriation: Procurement
Contract Name: Detail Design & Construction of T-AO 206
Contractor: GD NASSCO
Contractor Location: 2798 Harbor Drive
San Diego, CA 92113-3650
Contract Number: N00024-16-C-2229/2
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: June 05, 2017
Definitization Date: June 05, 2017

(U//~~FOUO~~) Contract Price

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
(b)(4)							

(U//~~FOUO~~) Target Price Change Explanation

(b)(4)

(U//~~FOUO~~) Contract Variance

Item	Cost Variance	Schedule Variance
(b)(4)		

(U//~~FOUO~~) Cost and Schedule Variance Explanations

(b)(4)

Notes

This is the first time this contract is being reported.

Deliveries and Expenditures

Deliveries				
Delivered to Date	**Planned to Date**	**Actual to Date**	**Total Quantity**	**Percent Delivered**
Development	0	0	0	--
Production	0	0	20	0.00%
Total Program Quantity Delivered	0	0	20	0.00%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	12923.1	Years Appropriated	9
Expended to Date	514.0	Percent Years Appropriated	33.33%
Percent Expended	3.98%	Appropriated to Date	2424.5
Total Funding Years	27	Percent Appropriated	18.76%

The above data is current as of March 11, 2019.

(U//~~FOUO~~) Operating and Support Cost

Cost Estimate Details

Date of Estimate:	July 07, 2017
Source of Estimate:	POE
Quantity to Sustain:	17
Unit of Measure:	Ship
Service Life per Unit:	40.00 Years
Fiscal Years in Service:	FY 2021 - FY 2075

The procurement and sustain quantity has increased from 17 to 20 ships. An APB revision to update the total quantity will be completed prior to the next SAR submission.

Sustainment Strategy

The Military Sealift Command (MSC) maintains the T-AO Fleet Oilers utilizing established sustainment practices and maintenance philosophy which reflect the ship's commercial design and construction, utilization of commercial equipment and MSC's two-level maintenance philosophy consisting of shipboard and depot level maintenance. Sustainment efforts follow commercial merchant service practices that emphasize maximizing cost effectiveness and ship availability. Operating Tempo (OPTEMPO) was assumed 55% of In Fleet Time (IFT) steaming underway and 45% of IFT steaming not underway, the average of the Dry Cargo/Ammunition Ship (T-AKE) Visibility and Management of Operating and Support Costs (VAMOSC) data and the T-AO 201-204 data.

Antecedent Information

The Antecedent Systems are the T-AO 187 Class (specifically hulls T-AO 201-204) and T-AKE 1 Class as these are the most recent double-hulled auxiliary ships. The T-AO 201-204 and T-AKE 1-14 estimates were derived using the Naval Visibility and Management of Operating and Support Costs (VAMOSC) database and the Military Sealift Command (MSC) Indirect values. The years of data used for T-AO 201-204 was FY 1993 through FY 2015. The years of data used for T-AKE 1-14 was FY 2006 through FY 2015.

Annual O&S Costs BY2016 $M		
Cost Element	**T-AO 205 Class Average Annual Cost Per Ship**	**T-AO 187 Class (Antecedent) Average Annual Cost Per Ship**
Unit-Level Manpower	8.558	9.000
Unit Operations	9.871	11.000
Maintenance	9.445	6.000
Sustaining Support	0.339	1.000
Continuing System Improvements	0.447	1.000
Indirect Support	12.277	11.000
Other	--	--
Total	40.937	39.000

Item	~~(U//FOUO)~~ Total O&S Cost $M		
	T-AO 205 Class		T-AO 187 Class (Antecedent)
	Current Production APB Objective/Threshold	Current Estimate	
(b)(4)			

Equation to Translate Annual Cost to Total Cost

Total O&S Cost = 17 ships x $40.937M Average Annual Cost per ship x 40 year service life.

O&S Cost Variance		
Category	BY 2016 $M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2017 SAR	27837.4	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	27837.4	

Disposal Estimate Details

Date of Estimate: July 07, 2017
Source of Estimate: POE
Disposal/Demilitarization Total Cost (BY 2016 $M): 74.4

Disposal costs account for the inactivation cost and the net disposal (scrap) cost. The T-AO 205 is not currently being considered as a remobilization asset, therefore no costs are set aside for that effort once the ship is decommissioned and taken out of service.