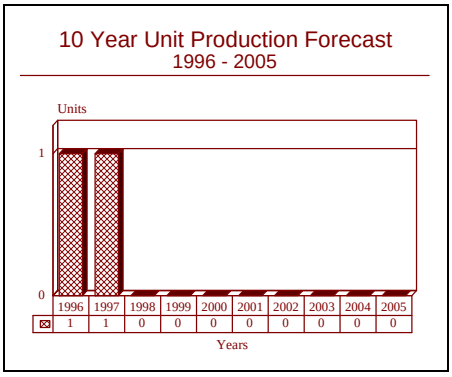
WLQ-4 - Archived 10/97

Outlook

- Limited production to equip Seawolf class SSNs
- May be modified for new SSN applications
- Littoral operations make ESM systems more important to the submarine force



Orientation

Description. This is a naval SIGINT system.

Sponsor

US Navy
Space & Naval Warfare Systems Command
(SPAWAR)
Crystal Park, Building #5
Arlington, Virginia (VA) 22202
Tel: +1 703 602-8954

Contractors

GTE Government Systems Corp
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Taunton, Massachusetts (MA) 02780-4466
USA
Tel: +1 508 880 4466
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(Prime)

Lockheed Martin Corp
6801 Rockledge Drive
Bethesda, Maryland (MD) 20817
Tel: +1 301 897-6711
Fax: +1 301 897-6800 fax
(Software support)

Status. In service, upgrades and logistics support ongoing.

Total Produced. Through 1995, an estimated 40 systems had been produced.

Application. SIGINT (Signals Intelligence) onboard select submarines.

Price Range. The last known estimated unit cost in FY87 dollars was US$10.3 million.

Technical Data

Design Features. The WLQ-4(V) is an automated, modular signals collection system designed to replace the manual WLR-6 on SSN-637 class submarines. It incorporates a network of minicomputers and microprocessors. Data are correlated with information from satellite sensors. The system is part of the classified *Sea Nymph* program.

The WLQ-4 was designed to be a sensitive receiving and processing system that intercepts and identifies radar and communications signals. The system uses 400,000 lines of source code and 50,000 lines of executable code in 40

microprocessors in the UYK-20. The original design included significant growth capacity.

Operational Characteristics. The WLQ-4 can identify the nature and possible source of received signals. Among the major characteristics are its automatic search, acquisition, and signal processing capabilities, as well as automatic logging, bookkeeping and reporting functions.

Variants/Upgrades

The Navy has a product improvement program to upgrade system operational capabilities through software upgrades.

WLQ-4(V)1 Repackaged for the SSN-21.

Program Review

Background. The WLQ-4 was developed during the mid-1970s with early development awards going unannounced. Because the system is software-intensive, major activity usually involves software maintenance and improvements. The system went to sea in the late 1970s for evaluation, and entered the fleet operationally in late 1980. In FY89, repackaging of the *Sea Nymph* for the SSN-21 was initiated. This included WLQ-4 changes to adapt it to the *Seawolf*- class attack submarine.

In FY90, the Navy began to evaluate improvements needed to upgrade the WLQ-4 for the SSN-21. Development of these improvements was planned to begin in FY91.

On May 27, 1994, the Naval Regional Contracting Center, San Diego, announced that it intended to solicit GTE Government Systems for a WLQ-4(V)1 suite for SSN-23.

Funding

US FUNDING

	FY94		FY95		FY96		FY97 (Req)	
	QTY	AMT	QTY	AMT	QTY	AMT	QTY	AMT
Procurement (USN)								
WLQ-4	-	2.3	-	6.0	-	2.9	-	4.2

NOTE: The FY97 Defense Authorization and Appropriations bills approved the requested funding for the WLQ-4.

All US$ are in millions.

Recent Contracts

(Contracts over $5 million.)

Contractor	Award ($ millions)	Date/Description
GTE	9.3	Jul 1995 - FFP contract for one WLQ-4(V)1 radio equipment suite for the *Seawolf* submarine SSN-21. Expected to be completed in 21 months

Timetable

Jul	1974	Approval for development
Mar	1976	Initial contract signed
Jul	1977	Navy Preliminary Evaluation/Initial Operational Test
Nov	1977	Provisional Approval for Service Use/approval for five pre-production systems

May	1978	Navy acceptance testing of Engineering Development Model
Jul	1978	Navy Technical and Operational Evaluations (TECHEVAL/OPEVAL)
Nov	1978	Provisional Approval for Service Use/approval for additional eight pre-production systems
Mar	1979	First ship installation
Nov	1979	Approval for additional six pre-production systems:
Nov	1979	At sea TECHEVAL/OPEVAL
Nov	1979	Complete OPEVAL
Sep	1980	Approval for service use/approval for full production
Nov	1987	Repackaging for SSN-21 approved
Jun	1995	Contract for SSN-21 system, *Seawolf* christened
	1996	SSN-21 initial sea trials successful

Worldwide Distribution

This is a **US** only program.

Forecast Rationale

Security restrictions restrict the information available on this and similar systems. The SIGINT mission is a major interest item, and has become even more important as the Navy adjusts to new post-Cold War missions. These missions will fall to the submarine force in many areas.

The Navy is bringing its SIGINT resources up to a standard which supports intercept operations in a more sophisticated littoral electromagnetic environment. Advances in data analysis and fusion were incorporated into the system through software upgrades, eliminating the need for extensive hardware upgrades.

Much of the procurement funding for the WLQ-4(V) is part of the acquisition package for the hull on which it is installed. This eliminates the need for the program to compete independently for funds; approval of hull production is tacit approval for WLQ-4 production.

The operational capabilities of the equipment remain adequate for most current mission requirements. Indications are that this will remain the case for several years.

A market for spares, repairs, and software upgrades will continue through the reporting period. Because of the nature of its mission, WLQ-4 support will not be cut back as much as some combat and NATO-oriented weapons systems will. In fact, some capabilities of the SIGINT systems may be upgraded for more effective monitoring of treaty compliance.

Due to problems with the development of a successor system, Congress is encouraging the Navy to upgrade the WLQ-4(V)1s to be installed on the SSN-21s to the "best affordable capability." The chart is based on three *Seawolf*-class boats being built.

Ten-Year Outlook

		ESTIMATED CALENDAR YEAR PRODUCTION											
			High Confidence Level				Good Confidence Level				Speculative		
Designation	Application	thru 95	96	97	98	99	00	01	02	03	04	05	Total 96-05
WLQ-4	SSN-637, SSN-685, SSN-671, SSN-21	40	1	1	0	0	0	0	0	0	0	0	2