

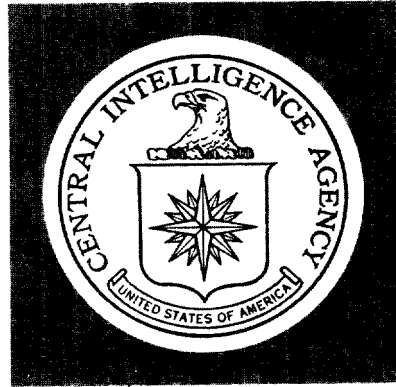
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*Mr. Keston*

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DIRECTORATE OF  
INTELLIGENCE

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# Intelligence Report

*The Soviet Y-Class Submarine Construction Program*



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October 1968



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CENTRAL INTELLIGENCE AGENCY  
Directorate of Intelligence  
October 1968

INTELLIGENCE REPORT

The Soviet Y-Class Submarine Construction Program

Summary

Production of the Soviets' new Y-class ballistic-missile submarine at the [ ] shipyard apparently will reach a level of six per year by 1969.

[ ]  
The evidence also indicates that fewer units are being built simultaneously at [ ] than previously believed, but the estimated output of six per year remains unchanged because of the faster construction pace.

Since the first Y-class submarine came off the ways two years ago, probably six additional units have been launched--the latest one in mid-September 1968.

[ ]  
Note: This report was produced solely by CIA. It was prepared by the Office of Strategic Research and coordinated with the Directorate of Science and Technology and the Office of National Estimates. The data and conclusions in this report are consistent with, but amplify in detail, the judgments of [ ]  
Soviet Strategic Attack Forces.

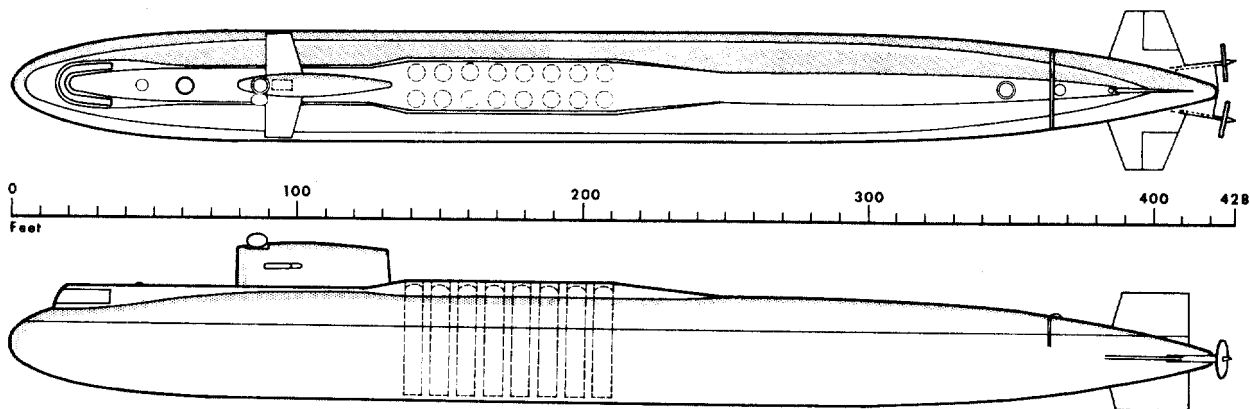
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[redacted]

The current tempo of construction at [redacted] could result in a fleet of nearly 35 Y-class submarines--believed to be the Soviets' minimum force goal--by 1974 rather than 1975 as previously estimated. [redacted] participation in the program would enable them to reach this goal a year sooner.

Previous Soviet deployment of ballistic-missile submarines and probable targeting requirements suggest that about two-thirds of the Y-class force will be based in the Northern Fleet and the remainder in the Pacific.

### Y-CLASS BALLISTIC-MISSILE SUBMARINE



[redacted]

*Propeller blades, outer missile hatch configuration, and lower stern fin are estimated.*

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Y-Class Construction at [redacted]

1. New intelligence regarding Soviet production of the 16-tube, Y-class ballistic-missile submarine at the [redacted] shipyard indicates that fewer submarines are under construction at one time than previously estimated, but that annual output will remain about the same because of a shorter construction period for each hull.\*

2. For previous submarine building programs, the main construction hall at [redacted] was divided into six building ways, each with two hull assembly positions. It was originally believed that the same arrangement had been retained for construction of the new and larger Y-class submarines. [redacted]

[redacted] Thus only four ways are being used for Y-class construction. (See foldout illustration, next page.) The change in spacing of the ways allows room for installing the large stern planes of the Y-class and provides more room for other assembly processes. Since each of the four ways is large enough to accommodate two Y-class hulls end to end, eight units can be under construction simultaneously--four in the first assembly positions and four in a more advanced stage in the second positions on the ways.

3. Seven Y-class submarines probably have been launched thus far. The first hull came off the ways in August or September 1966 and completed outfitting at [redacted] in June 1967. Two more units were

\* This new information modifies somewhat the judgments in SR IR 68-4, May 1968, Soviets Push Production of Polaris-Type Submarines [redacted]

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apparently launched in the fall of 1967 and were completed in the spring of 1968. Two more were launched that spring, another in August, and another in September; all four of these units are still outfitting. This construction history (see Appendix for details), combined with the correlation in time between the movement of hull sections into the main construction hall and subsequent launchings of completed hulls, indicates that Y-class submarines are being built at [redacted] in about two years time--16 months in the construction hall and 8 months at the fitting-out quay. Heretofore, three years were required to assemble and outfit nuclear submarines at this shipyard.

4. The key to this reduction in construction time was a substantial change in facilities that allowed larger and more completely fitted submarine hull sections to be produced in subassembly. Facility changes--began in 1963 and completed in late 1965--included a 30-percent increase in subassembly space and the installation of a new, heavy-duty transverser for shifting hull sections from the subassembly area to the main construction hall.

5. Not until [redacted] that all eight building way positions were occupied. All Y-class submarines launched prior to [redacted] came from the northernmost building ways. The two southernmost ways were not available as early as the northern ways, partly because they were obstructed until late [redacted] by an H-class submarine which was undergoing extensive modification. No Y-class hulls could be moved into the second building position on either of the two southernmost ways until the H-class was moved into the launch basin [redacted]

6. The [redacted] since the fall of 1967 indicates that one assembly position is being loaded about every two months, each submarine spending about eight months on each of the two assembly positions of the way on which it is being built, and that all eight positions were occupied for the first time in early 1968. With this [redacted] and a two-year construction cycle, a peak output of six submarines per year will be reached by mid-1969.

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Possible Construction at [redacted]

7. The possibility that Y-class submarines are being built at the [redacted] was suggested in [redacted] when [redacted] revealed two submarine hull sections at the shipyard similar in size to Y-class sections observed earlier [redacted]. This indication was strengthened by the sighting in [redacted] of a large new submarine transporter dock at [redacted]. Because of shallow water [redacted] transporter docks must be used to transfer large submarines from [redacted] to the delivery base at Petrovka.

8. Transporter docks presently in use in the Pacific Fleet are too small to carry Y-class submarines. The new dock--the largest ever seen in the USSR--can accommodate submarines up to about 490 feet long and 50 feet wide. The only known class of submarine that would require a transporter dock of this size is the Y-class. The 55-foot-wide stern section of the Y-class might not fit into the new dock, but installation of the stern planes would be a relatively simple operation and probably could await final outfitting at Petrovka.

9. Whatever is being built at Komosomol'sk, the construction capacity of the yard is considerably less than that of [redacted]. Nuclear submarines are built in four covered building docks, each approximately 500 feet long and 80 feet wide--too small to accommodate more than one Y-class hull per dock. (See illustration, next page.) Beginning in 1965, however, facilities at [redacted] have undergone changes similar to those observed at [redacted] permitting the handling of larger hull sections. As at Severodvinsk where such changes apparently enabled the Soviets to reduce submarine assembly and outfitting time from three years to about two, a similar reduction can be expected in the previous three-year cycle at [redacted]. As new facilities at [redacted] are only now nearing completion, however, submarines laid down before the new facilities were ready for use might still take three years to build.

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10. If the Y-class is being built at [redacted] the first hull could have been laid down as early as 1965. The [redacted] of an uncompleted Krupnyy-class destroyer from the four-dock building at [redacted] in late 1964 signaled a change in the use of that building. Work on the destroyer is believed to have stopped about 1962, but it was kept inside the building until the end of 1964. The first hull could have been laid down in 1965, after the Krupnyy hull was moved outside. Assuming that Y-class hulls were laid down in each dock as it became available, the fourth hull could have been laid down in 1967, after delivery of the last E-class submarine. If the first one or two units take three years to build, they could be launched in 1968. With a two-year production cycle thereafter, two submarines could be produced each year.\*

#### Future Force Levels

11. Although the ultimate Soviet force goal is not known, the current tempo of Y-class construction at [redacted] and indications that a second shipyard may be involved in production point to a large, high-priority program. Production programs for the N and E classes--the most representative of previous Soviet nuclear submarine building programs--spanned some seven to nine years. A similar span for the Y-class would result in at least 35 units brought into service by mid-1973 if both [redacted] and [redacted] were involved in the program. Nearly that many would be operational by mid-1974 if [redacted] alone were involved. About 50 units could be in service by 1975 if both yards were in production. (See table, next page, for estimated midyear force levels.)

12. A force of 35 Y-class submarines, together with existing H- and G-class units, would provide

\* Deliveries from [redacted] are limited by the navigation season--June through October--on the Amur River. In the past, most nuclear submarines built at Kom-somol'sk have been delivered to Petrovka during October and have spent only a few weeks in final outfitting there before beginning sea trials.

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Soviet Y-Class Submarine Program:  
 Estimated Annual Completions and Midyear Force Levels,  
 1967-75

	Completions (Year-End)			Operational Force Levels (Midyear)				
	Annual	Cumulative	Annual	Cumulative	Cumulative Total		Total	
1967	1	1	0	0	1	0	0	0
1968	2-3	3-4	1-2	1-2	4-6	1	0	1
1969	6	9-10	2	3-4	12-14	4-5	1-2	5-7
1970	6	15-16	2	5-6	20-22	9-10	3-4	12-14
1971	6	21-22	2	7-8	28-30	15-16	5-6	20-22
1972	6	27-28	2	9-10	36-38	21-22	7-8	28-30
1973	6	33-34	2	11-12	44-46	27-28	9-10	36-38
1974	0-6	33-40	0-2	11-14	44-54	33-34	11-12	44-46
1975	0	33-40	0	11-14	44-54	33-40	11-14	44-54

*Note: A submarine is considered completed when it has been fitted out after launch, undergone acceptance sea trials, and been accepted by the navy. It then undergoes shakedown trials and training with operational crews before becoming operational. Completions are tabulated on a calendar year basis, but operational force levels are midyear figures to conform to the practice used in National Intelligence Estimates.*

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the Soviets with about the same number of ballistic-missile launchers as in the current US Polaris force-- probably their minimum force goal. If Soviet leaders desire comparability with the US in terms of launchers continuously on station, a force of about 50 Y-class units probably would be required because of the long distances between Soviet submarine bases and patrol areas off the US.

13. A force of 50 submarines would make the Y-class the most expensive submarine program ever undertaken by the Soviets. Procurement of the submarines alone would represent an investment on the order of \$5 billion to \$6 billion measured in equivalent US terms. Missiles and other system investments would add some \$2 billion to \$3 billion. This does not include operational and maintenance costs which would also be substantial. Estimated annual procurement expenditures for the Y-class through 1975 would be more than two-thirds the average annual outlay for all submarines built during the 1958-1967 period and would comprise nearly half the estimated average annual procurement expenditures for all of the submarines likely to be produced during the 1968-1977 period.

14. New policy decisions or the development of a new missile system could, of course, result in a shorter production run than the 35-50 currently estimated. Operational experience might also dictate design changes which could cause production rates to fall short of the current estimates.

#### Deployment

15. The first Y-class unit to be completed was transferred from [redacted] to the operational submarine base at Guba Sayda on the Kola Peninsula in late 1967. The second unit is believed to have been delivered there last spring and the third in late August or early September. One of the first two units apparently returned to the launch basin at [redacted] in mid-May along with another Y-class unit which probably had been outfitting. [redacted]

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[REDACTED]

activity could be observed on the other unit, which returned to the outfitting quay after spending about two months in the launch basin. The first unit left [REDACTED] again in late August or early September.

16. It is not known why either of these units returned to the launch basin, but difficulties of one kind or another can be expected to plague early units in any new program.

[REDACTED]

17. Deployment of the Y-class probably will follow past Soviet practice for ballistic-missile submarines. A substantial increase in missile storage capacity at Guba Sayda and Guba Litsa in the Soviet Northern Fleet and at Petropavlovsk and Dunay in the Pacific Fleet since 1965 suggests that Y-class submarines will be deployed to these existing missile submarine bases. Since most potential targets are in the Atlantic area, about two-thirds of the force will probably be deployed in the Northern Fleet.

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APPENDIX

History of the First Hulls

Unit 1

The first Y-class submarine to be built was observed for the first time in [redacted] of [redacted]. It had been moved out of the construction hall sometime after [redacted] and was observed alongside the outfitting quay. [redacted]

[redacted] however, the submarine was back at the outfitting quay with work under way on the missile compartment.

[redacted] Since unit 2 could not have completed outfitting by then (see below), and ice at the entrance to [redacted] remained unbroken from early [redacted] the Y-class submarine observed at Guba Sayda on [redacted] must have been unit 1.


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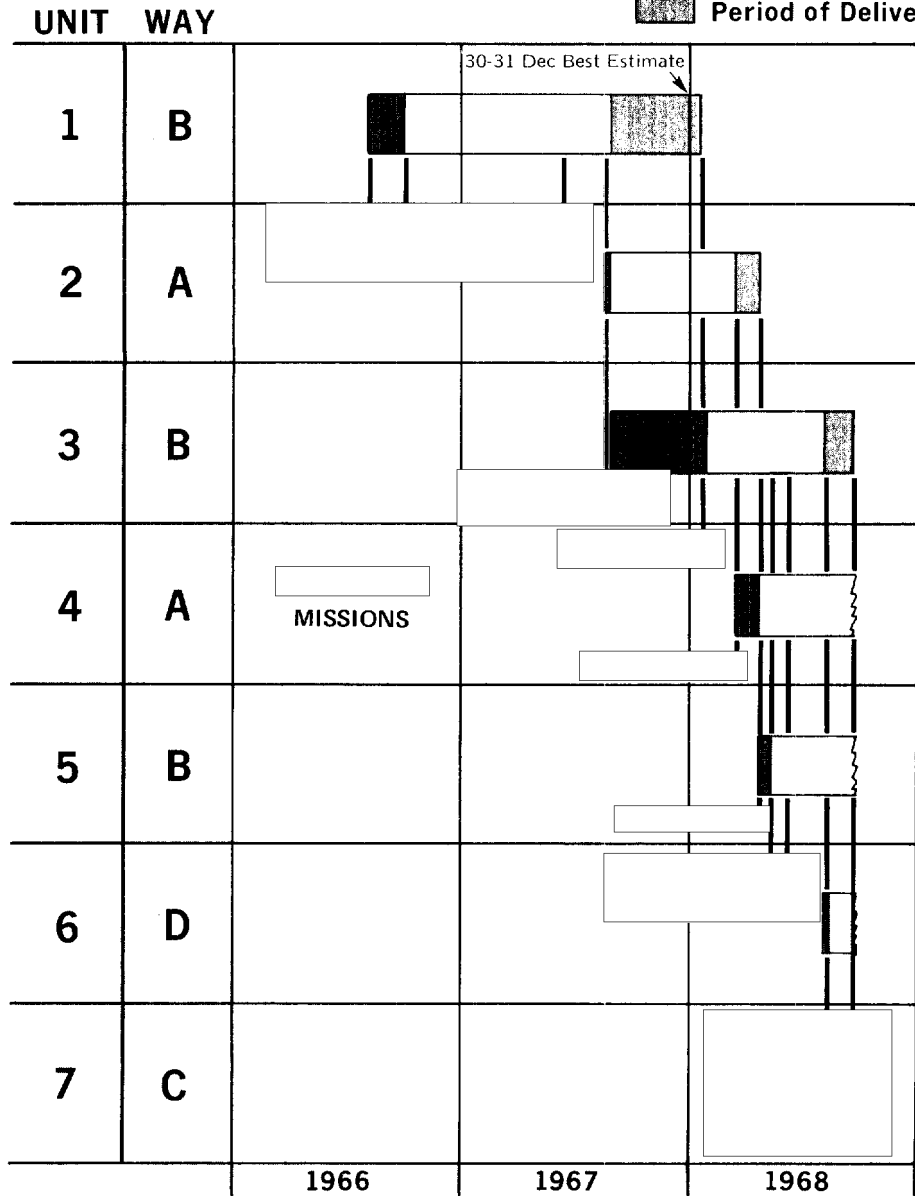
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# Launchings and Deliveries of Y-Class Submarines from [redacted]

Through September 1968

 Period of Launch

 Period of Delivery



30-31 Dec Best Estimate

1966

1967

1968

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~~TOP SECRET~~Unit 2

Circular hull sections [redacted] being moved into the construction hall at [redacted] on [redacted] are believed to have been for unit 2. Since the stern section is the first to enter the hall, the stern for this unit could have been in position on the assembly way as early as [redacted]

Some 16 months later, on [redacted], what is almost certainly unit 2 was [redacted] in the launch basin on track A. This unit was moved to the outfitting quay between [redacted] where it remained until at least [redacted]. Between [redacted] a path was cleared through the ice exiting [redacted] suggesting that unit 2 had been completed and transferred to Guba Sayda.

Unit 3

[redacted] of [redacted] was obtained between [redacted]. Poor-quality [redacted] of [redacted] showed two submarines at the [redacted] fitting-out quay which were probably units of the Y class. Since unit 1 apparently had already been transferred to Guba Sayda, the two [redacted] on the 27th probably were units 2 and 3. If so, unit 3 must have been launched between [redacted]

A stern section probably for hull 3 was [redacted] being moved into the construction hall in [redacted]. With a 16-month assembly period, the most likely launch date for this unit would be September 1967. Since unit 2 was launched from track A, unit 3 must have come from track B. Unit 3 apparently left Severodvinsk for sea trials in early [redacted] but was not transferred to Guba Sayda until [redacted] or early [redacted].

Unit 4

[redacted] of [redacted] showed evidence of preparations for another launching: track A had been cleared of snow. [redacted] later, [redacted] hull sections for most of a Y-class unit were seen being moved into the construction hall, suggesting that another hull had been moved forward on the building way subsequent to a launching.

Two units were observed alongside the outfitting quay on both [redacted] but on the latter

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date one of the units was pointing away from the launch basin, suggesting that it might be a new unit, presumably number 4. [redacted] had been cleared through the ice exiting [redacted] suggesting that one of the units observed at the outfitting quay on [redacted]-probably unit 2--had left the shipyard for Guba Sayda. Hence, unit 4 probably was launched from track A between [redacted] [redacted] it was still outfitting.

Unit 5

[redacted] another submarine, probably unit 5, had joined the two which were at the outfitting quay on [redacted]. This unit probably was launched from track B. Between [redacted] keel blocks used to support a floating crane [redacted] just south of track B. A crane resting on these blocks would partially obstruct track C, but could properly service a submarine being launched from Track B. As of [redacted] this unit also was still outfitting.

Units 6 and 7

[redacted], another new submarine, probably unit 6, was [redacted] while being launched from track D. On [redacted], this unit was seen alongside the outfitting quay, and another new unit, probably unit 7, was observed being launched from track C.

Construction Cycle

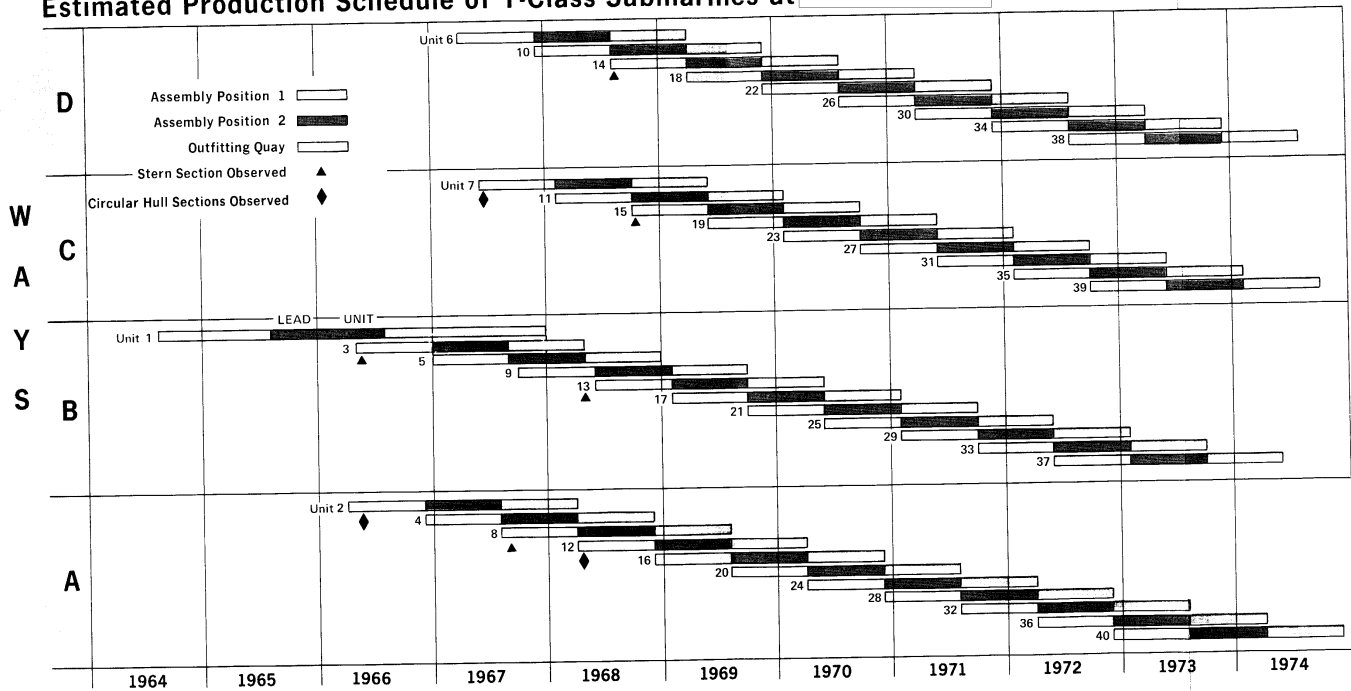
Except for the first unit, all Y-class submarines built to date apparently have spent about 16 months in the construction hall--eight months on each of two building way positions--and another eight months outfitting.

It is not known how much time is spent on fabrication of hull sections in the subassembly buildings before the sections are moved into the main construction hall. Major movements in the construction process apparently occur at eight-month intervals, however, so it is logical to assume that about eight months are spent on fabrication of hull sections for each Y-class before the sections are moved onto the building ways for final assembly.

This construction cycle probably will hold true for future units of the Y-class as well. The fold-out chart, opposite, shows the estimated Y-class production program at [redacted] assuming continuation of the current construction cycle.

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### Estimated Production Schedule of Y-Class Submarines at [redacted]



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