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EMPLACEMENT OF WEAPONS OF MASS DESTRUCTION ON THE SEABED

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Submitted by

DIRECTOR OF CENTRAL INTELLIGENCE

Concurred in by the

UNITED STATES INTELLIGENCE BOARD

as indicated overleaf

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C E N T R A L I N T E L L I G E N C E A G E N C Y

15 August 1968

SUBJECT: SNIE 11-12-68: EMPLACEMENT OF WEAPONS OF MASS DESTRUCTION ON THE SEABED

THE PROBLEM

To estimate the capabilities of US intelligence to monitor a ban on the emplacement of weapons of mass destruction on the seabed -- defined as the ocean floor outside territorial waters -- and to estimate the likelihood of Soviet or third country deployment of such weapons, during the next 10 years or so.

SCOPE

For the purposes of this estimate, the following types of weapons are assumed to be prohibited:

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a. Manned or unmanned installations containing nuclear weapons or missiles, encapsulated nuclear missiles, and nuclear mines, resting on, anchored to, or imbedded in the seabed.

b. Nuclear weapon systems designed to operate primarily on the seabed but having the characteristic of mobility.

While chemical or biological weapons of mass destruction could theoretically be emplaced on the seabed, the problems of their detection and identification would be the same as in the case of nuclear weapons. Likewise, the considerations affecting intent would be virtually the same. Hence in this estimate, only nuclear weapons are specifically discussed.

Mobile strategic offensive and defensive weapon systems of mass destruction whose principal object is to make use of the seas, as opposed to the seabed, are assumed not to be banned and are, therefore, beyond the scope of this estimate. Neither will the temporary anchorage of ships or submarines to the seabed, whether for emergency purposes, for purposes incident to navigation, for purposes of avoiding detection, or for preparations to launch missiles, be considered in this estimate.

CONCLUSIONS

A. We believe that neither the USSR nor any other country would, during the period of this estimate, deploy weapons of mass destruction on the seabed in violation of an agreement banning such deployment. If any signatory decided that it could no longer tolerate the restrictions imposed by the agreement, we believe that it would abrogate the agreement openly rather than try secret evasion, probably after making covert preparations for the prohibited emplacement in advance of the announcement.

B. The time required for detection and verification of a violation would vary with the nature, size, and location of the prohibited deployment. It would be difficult for us to identify a seabed weapon system as such prior to deployment. Detection of predeployment activity, however, and of support systems and activities associated with installation, checkout, maintenance, resupply, and command and control, would arouse our suspicions and would probably lead to eventual detection and identification of the prohibited deployment.

C. We believe that deployment under the open ocean would be detected before a large number of missiles became operational. The deployment of a small number might escape detection for some time after they became operational.

D. Even after detection of deployment, verification of a violation would probably be a costly and time-consuming process,

DISCUSSION

I. GENERAL CONSIDERATIONS

1. In assessing our ability to monitor an agreement of the sort being considered here, it must be remembered that we are dealing with the development and deployment of radically new weapon systems, the characteristics of which we can only imagine on the basis of our knowledge of relevant US and Soviet technology.

Essentially, we are faced with consideration of two general types of weapon systems. The first would employ a missile deployed on the seabed and launched to a distant target. Such a system would be highly sophisticated and would use new technology and new methods of operation and control. The other type would consist of a nuclear weapon emplaced on the seabed near its intended target to be exploded without ejection from the water, in the nature of a mine. The characteristics of any such systems would be much different from the characteristics of those weapon systems upon which our past monitoring experience is based. In this respect, any judgments which we make with respect to our capability to monitor a seabed weapons agreement must necessarily be tentative.

2. Our regular sources of intelligence information -- SIGINT, overhead photography, and human sources -- would be a significant part of our detection capabilities

3. Additionally, we wish to note that action on our part to verify possible violations of a seabed agreement might have to be initiated on the basis of evidence obtained from very costly and highly sophisticated sources of intelligence information, and the action to verify might in itself compromise those sources. The collection of direct physical evidence of a violation would almost certainly involve the use of technical collection systems the characteristics of which we might not wish to reveal. This could create a situation in which the US, if it believed that a violation had occurred, might have to consider abrogating the agreement without demonstrating openly that a violation had, in fact, occurred.

II. THE LIKELIHOOD OF SEABED WEAPONS DEPLOYMENT

4. The conclusion of an agreement prohibiting the emplacement of weapons of mass destruction on the seabed would, we believe, signify that the signatories had decided to accept, at least for a time, the prohibitions it imposed. If any signatory violated the agreement through concealment or deception, we believe that its aim would be to improve significantly its strategic position. Given the present and foreseeable strategic situation, such an

improvement for the USSR would require a large scale program involving several hundred weapons. Other countries could significantly improve their strategic position with far fewer weapons. While such deployment could not give them a decisive military capability against a major power, it could act as a deterrent, and could provide a significant capability against another lesser power. Clandestine deployment, however, would have no political or psychological effect until disclosed.

5. Only four foreign nations -- the USSR, the UK, France, and Communist China -- have developed and tested nuclear weapons. Beyond these, India and Israel might undertake a nuclear weapons program in the next several years. During the period of this estimate, however, only the USSR, the UK, and France are likely to be sufficiently advanced in both their nuclear and underwater weapons technology to be able to develop, deploy, and maintain an effective seabed missile system. Even so, any such system deployed by those countries would probably be limited to encapsulated missiles or possibly a simple type of missile-launching vehicle, and would almost certainly be limited in deployment to shallow (i.e., down to about 700 feet), ice-free waters. Considerations of security

and the necessity for reliable command and control would be major factors militating against deployment in noncontiguous waters.

6. In addition, any country with a nuclear weapons capability could develop and deploy a nuclear mine, but such weapons, to be effective, must be deployed near their intended targets and, unless intended for use at a predetermined time, would require a sophisticated command and control system. This would make clandestine deployment very difficult.

7. With respect to the USSR, UK, and France, a number of other factors make it highly unlikely that they will deploy seabed weapons during the period of this estimate. All three have embarked on new missile submarine programs to increase the size and survivability of their strategic forces. These new programs are likely to extend into the mid-1970's, and the UK and France, at least, are unlikely to commit resources to the development and deployment of yet another type of underwater weapon system during the period of this estimate. In the USSR, the commitment to a variety of land-based missile systems and to the new missile submarine program suggests that Soviet leaders view these systems as the most fruitful lines to pursue. The vast land area of the USSR, and the few ice-free

areas adjacent to the USSR which might be used for deployment of seabed weapons, would seem to provide little motivation for deployment of seabed systems, most of which would be less effective and more costly, complex, and unreliable than current land or sea-based systems.

8. In planning to develop or deploy seabed weapons in violation of an arms control agreement, the violating nation would have to count on successfully concealing the program to a point where it could achieve the desired improvement in its strategic position. The possible advantages, costs, and risks of a major clandestine weapons program would have to be weighed against the alternatives of compliance with the agreement or of open abrogation and unconstrained deployment. If any signatory decided that it could no longer tolerate the restrictions imposed by the agreement, we believe that it would abrogate the agreement openly rather than try secret evasion, probably after making covert preparations for the prohibited emplacement in advance of the announcement.

III. THE MONITORING PROBLEM

A. Detection During the Development Phase

9.

10. With respect to an entire seabed missile system, either fixed or mobile, we believe that we would detect some steps in its development, since it would almost certainly involve development of a prototype launcher and considerable testing of the whole system prior to deployment. It would probably be difficult, however, to identify the system specifically as a seabed system. Testing of such a system would be difficult to distinguish from the testing of a new submarine system or of one intended for use in an inland body of water.

B. Detection of Violations

11. In general, the time required for detection and verification of a violation would vary with the nature, size, and location of the prohibited deployment. A large-scale effort, for example, or one involving the development of an entirely new weapon system, is more likely to raise our suspicions in the pre-deployment phase, which in turn would increase the likelihood of early detection once deployment began. Our chance of detecting deployment activity is better in the open ocean and in the Mediterranean Sea than in enclosed seas such as the Black or Baltic. Our capability to detect underwater activity at long ranges is virtually nonexistent in the Southern Hemisphere and is better in the deep ocean than in shallow water. Our capability to verify a violation once we had determined its approximate location is better in shallow water than in the deep ocean. It would be more difficult to confirm a violation in the case of mobile than of fixed systems, not only because of the difficulty in finding a mobile system on

the seabed once deployment had been detected, but also because of the difficulty in proving that a mobile system was designed specifically for use on the seabed. In any case, verification of a violation is likely to be a costly and time-consuming process.

12. Installation, checkout, maintenance, resupply, and command and control procedures would afford us our best opportunities for detecting and determining the location of violations, especially in the case of manned systems. These procedures would necessitate the use of unique, though not necessarily readily identifiable, auxiliary craft, support facilities, and radio, acoustic, or cable communications. Detection of support systems and activities would arouse our suspicions, particularly if preceded by detectable testing, and would probably lead to detection and identification of the prohibited deployment -- sooner in the case of large-scale deployment, later in the case of small scale.

13. In view of the above considerations, we believe that the deployment of missiles under the open ocean, whether individually encapsulated or in missile-launching vehicles, would be detected and identified before a large number became operational. The chances of detection and identification would be considerably less

in the case of deployment under enclosed seas.

14. The construction of fixed missile installations on the seabed would be easier to detect and identify than other methods of deployment. If surface ships were used in the construction of such installations under the open ocean, we believe that we would detect, locate, and identify the construction activity before IOC. If construction occurred under enclosed seas, or if the installations were tunneled from shore, detection and identification probably would take longer. In the unlikely event that submarines alone were used in the construction of such installations, detection and identification would be much more difficult.

C. Future Capabilities

15. Our capability to identify a seabed weapon system in the development stage is not likely to change significantly during the period of this estimate. Planned and proposed improvements in our submarine detection and deep submergence search and recovery capabilities would improve our capability to monitor deployment of seabed weapons, but we cannot estimate the extent to which this would reduce the amount of time required to confirm that a violation of a seabed agreement had occurred. Any new undersea weapon systems are likely to incorporate improvements which, to some extent at least, would offset expected improvements in our surveillance and detection systems.

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