

ACS 1660-1 SUB 33

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OFFICE OF THE FLAG OFFICER ATLANTIC COAST

CLASSIFIED CENTRAL REGISTRY (Atlantic Fleet) Ser: 0068/43

Originator Atlantic Sub. Warfare Force Originator's File No. 1-F-3/81:J1J Dated 18 May '62

File No. AC51660-1 Sub 33 Log No. 23799 Date Rec'd 29 June 62

Subject Exercise Slingshot 1-61

Referred To	Initial & Date	For Necessary Action, Remarks Report, Draft, etc.
SO/6	PH 5/7.	
Acos (Paw)	SW 6/VII.	
SCO	WLC 11/7	
Acos (Aaw) SO	19.7.	
SO (TAS)	R	
CANCOMFLT	MA 2/5	AC51660-1 Sub 33 Log 23799 removed by LCDR McDONALD SOASW to CANCOMFLT.

B.F. To NR Date _____

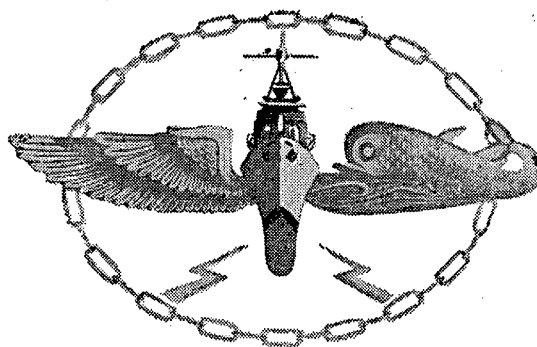
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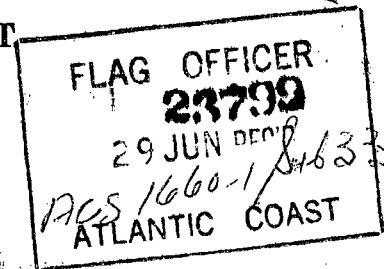
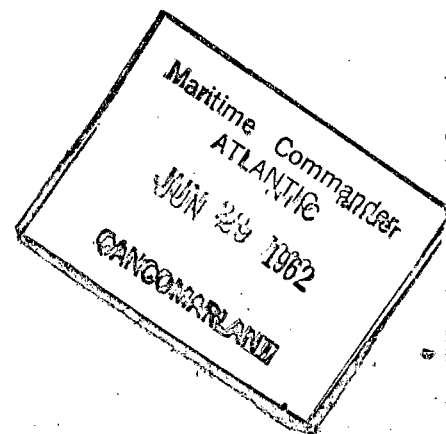
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CANUS SLAMEX

1-61



COMMANDER
ANTISUBMARINE WARFARE FORCE
UNITED STATES ATLANTIC FLEET



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DOD DIR 5200.10

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COMMANDER ANTISUBMARINE WARFARE FORCE
UNITED STATES ATLANTIC FLEET
NORFOLK 11, VIRGINIA

FF3/81:jlj
Ser 0068/43
18 May 1962

SECRET - Downgraded to Confidential upon removal of enclosure (2)

From: Commander Antisubmarine Warfare Force, U. S. Atlantic Fleet
To: Commander in Chief U. S. Atlantic Fleet

Subj: CANUS SLAMEX 1-61; report of (U)

Ref: (a) COMASWFORLANT OPORD 12-61

Encl: (1) Major Comments and Recommendations
(2) CANUS SLAMEX 1-61 Analysis

1. CANUS SLAMEX 1-61, a large area fleet exercise in defense against a simulated submarine launched missile attack, was conducted off the Atlantic Coast of the United States and Canada north of 32°N latitude and west of 55°W longitude. Reference (a) was the basic directive.

2. Major comments and recommendations are contained in enclosure (1), and the exercise analysis with exercise description and narrative are contained in enclosure (2).

3. CANUS SLAMEX 1-61 developed the following statistical results:

Participating submarine penetrations	6
Missile launches planned	14
Submarines detected and reported prior to first missile launch	5
Submarines detected by mobile forces prior to launch	4
Submarines attacked and killed prior to first missile launch	*3
Submarines attacked and killed during missile launch	0
Missile launches prevented	*4 (*2 P)
Percent success in preventing missile launch	*33%

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Subj: CANUS SLAMEX 1-61; report of (U)

NOTE: * TUSK attacked and killed (by umpire rules) before launch but did not acknowledge. Her two missile launches assessed only as possibly prevented; and these missiles were not counted as launches planned or prevented in computing percent success in preventing launches.

4. CANUS SLAMEX 1-61 achieved the exercise objectives as follows:

a. Objective. Test the capability of ASW forces to defend a section of the Canadian-United States east coast against a submarine launched missile attack by:

(1) Recognizing a submarine threat.

(2) Preventing missile launches.

COMMENT: The submarine threat was recognized; and a significant number of missile launches was prevented considering the prevailing weather conditions. The latter success was dependent on the exercise condition which permitted an attack against unidentified submarines within 500 miles of the U.S. coast during the reinforced alert.

b. Objective. Provide maximum training for assigned defensive forces.

COMMENT: Extensive valuable training of ASW forces including assigned reserve forces was accomplished.

c. Objective. Provide training in U.S.-Canadian co-ordination of adjacent ASW Control Center/Maritime Headquarters.

COMMENT: This exercise provided excellent experience in co-ordinating operations of adjacent headquarters. The primary problem areas remaining center around ashore/afloat control within each national force rather than between the national commands.

d. Objective. Test tactics, doctrines, and procedures for close-in-defense operations.

COMMENT: Although some defense in depth was achieved, a better plan for utilization of surface forces was derived from the exercise. Procedures for moving forces into adjacent areas while investigating contacts proved weak and will be improved. OPORDs and PLANs are not adequate relative to employment of air and surface forces and will be changed to incorporate the improved procedures.

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Subj: CANUS SLAMEX 1-61; report of (U)

e. Objective. Provide training for submarines in undetected penetration of defensive forces.

COMMENT: Valuable training of U. S. and U. K. submarines operating under a single U. S. operating authority was achieved. An increased awareness of SOSUS capabilities was demonstrated by all submarines.

f. Objective. Provide experience for COMASWFORLANT in communicating with and controlling an R.C.N. Antisubmarine Carrier Group.

COMMENT: The threat was recognized so rapidly after COMEX that decentralized control was ordered before this objective could be realized.

g. Objective. Provide training and experience in controlling a Surface Patrol Group by shore based ASW Group Commander/Maritime Headquarters.

COMMENT: Training and experience were provided; as previously noted, improved procedures will be derived from the experience of this exercise.

5. The most important lessons learned in CANUS SLAMEX 1-61 are as follows:

a. SOSUS.

(1) The position and classification information provided by SOSUS is excellent, but it does not equally cover all the penetrating submarines.

(2) A large problem still remains to be solved in converting the good SOSUS position information into localizations by mobile forces. In particular, the ability to recognize JEZEBEL signatures in flight must be improved.

b. Communications.

(1) The reliability demonstrated on single side-band circuits warrants the accelerated fitting of this capability to all ships. In this regard, some types of equipment are noticeably superior to others.

(2) Reserve forces perform well with the obsolescent equipments installed in their ships and aircraft, but maintenance requirements detract too much from necessary operational and training time.

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Subj: CANUS SIAMEX 1-61; report of (U)

(3) The Canadian callsign card system proved excellent, and its extension to U.S. national use will be investigated.

(4) Several promising measures for communications reduction were demonstrated and they will be adopted for future use.

c. Employment of forces.

(1) Henceforth, surface units will be employed in pairs and distributed more uniformly within the close-in defense area.

(2) Procedures for intertype co-ordination such as between HUK groups and VP aircraft and between VP and SAUs must be improved.

(3) CANUS problem areas to be resolved include:

(a) Call sign system.

(b) Authentication policy.

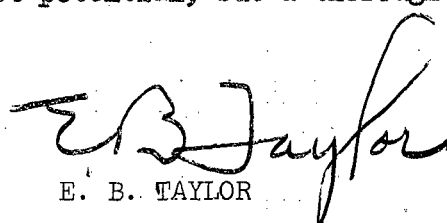
(c) Contact reporting.

(d) Rainbow formats.

(e) Crypto procedures.

(f) Standardization of classification.

(4) The proper employment of HUK group in the initial alert stages before any units make contact is still subject to study. The initial deployment to complement SOSUS by extending the ocean area of aircraft surveillance appears to have the most potential; but a thorough review will be made.


E. B. TAYLOR

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CNO	7
CNO (Op-03)	2 (copy for APL)
CNO (Op-06C)	2
BUWEPS (R-56)	1

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Copy to: (Cont'd)

NADC, JOHNSVILLE	1
CO, FLETRAGRU GTMO	1
INS, CAMBRIDGE, MASS	1
COMEASTSEAFRON	1
COMSECONDFIT	1
COMNAVAILANT	1
COMCRUDESANT	1
COMSUBANT	1
DEPCOMSUBANT	1
COMSERVANT	1
COMTRALANT	1
COMOPTEVFOR	1
CO, FAETULANT	1
GINCPACFLT	1
COMASWFORPAC	1
COMWESTSEAFRON	1
FRES, NAVWARCOL	1
CO, CIC SCOL GLYNCO	1
CO&DIR LANFILITASWTACSCOL	1
CO, FAETUPAC	1
CANCOMARANT	25 (For RCN/RCAF Units)
CANAVHED	1
CANAIHED	1
CNARESTRA	5
COMNAVRESTRACOM	1
COMFAIRQUINSET	3
COMFAIRJAX	2
COMCARDIV 14	1
COMCARDIV 16	1
COMCARDIV 18	1
COMCARDIV 20	1
COMFAIRWINGSANT	1
COMFAIRWING 3	1
COMFAIRWING 5	1
COMFAIRWING 11	1
COMOCEANSYSANT	13 (For further distribution)
COMBARFORANT	1
COMCARIBSEAFRON	1
CANCOMFLT	1
COMDESDEVGRU 2	1
CNO (OP-32)	2
CNO (OP-94)	1

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COMDESDIV 322	1	
COMDESRON 36	1	
COMSUBRON 2	1	
COMSUBRON 4	1	
CO, USS WASP (CVS-18)	1	
CVSG 52	4	(For further distribution)
CVSG 62	1	
CO, VX-1	1	
CO, VP-10	1	
CO, VP-21	1	
CO, VP-661	1	
CO, VP-933	1	
CO, VP-832	1	
CO, VS-837	1	
CO, VS-915	1	
CO, VS-733	1	
CO, VS-751	1	
CO, VS-935	1	
COMSUBDEVGRU 2	1	
CO, FLESONARSCOL, KWEST	1	
CO, USS SEVERN (AO-61)	1	
CO, USS STRONG (DD-758)	1	
CO, USS D.H. FOX (DD-779)	1	
CO, USS PURVIS (DD-709)	1	
CO, USS GLENNON (DD-840)	1	
CO, USS BROWNSON (DD-868)	1	
CO, USS MALOY (DE-791)	1	
CO, USS J.C. OWENS (DD-776)	1	
CO, USS DEALEY (DE-1006)	1	
CO, USS HAZELWOOD (DD-531)	1	
CO, USS R.A. OWENS (DDE-827)	1	
CO, USS NEW (DDE-818)	1	
CO, USS HOLDER (DDE-819)	1	
CO, USS RICH (DDE-820)	1	
CO, USS R.L. WILSON (DDE-847)	1	
CO, USS BASILONE (DDE-824)	1	
CO, USS DAMATO (DDE-871)	1	
CO, USS NAUTILUS (SS(N)-571)	1	
CO, USS BLENNY (SS-324)	1	
CO, USS TUSK (SS-426)	1	
CO, USS SAILFISH (SSR-572)	1	
CO, USS TORO (SS-422)	1	
CO, HMS ASTUTE (S-47)	1	
OIC, NAVTAGDOCDEVPRODACT WASHDC	1	
CO, CANAS SHEARWATER	1	
CAP DE LA MADELEINE	1	
COMASWFORLANT (FILES)	30	

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Section I

INTEGRATION OF AIR RESERVE FORCES

COMASWFORLANT COMMENT:

The following comments and recommendations are made by Reserve VP and VS units that participated in CANUS SLAMEX 1-61. Although many of the shortcomings reported in relation to aircraft and operational equipment are currently being improved by various measures in being or in planning, it is desired that continuing efforts be made all along the line in order that Reserve forces can be successfully integrated into all types of ASW exercises and operations.

CTE 81.2 COMMENT:

Squadron Commanding Officers at New York, Lakehurst and South Weymouth were designated Element Commanders and had additional responsibilities of operating OPCON Centers. This necessarily took the Commanding Officer and some of his key officers away from squadron duties.

RECOMMENDATION:

That future exercises utilize Selected Reserve Element personnel as set forth in COMASWFORLANT letter serial 0085/512 of 12 June 1961.

COMASWFORLANT COMMENT:

Concur.

CTE 81.2.1.3 COMMENT:

This element consisted of 4 aircraft from VP-661 and 4 aircraft from VP-993. Both of these squadrons were recalled to active duty on 1 October 1961. VP-661 has as its permanent home base NAS, Patuxent River, Maryland, and VP-933 is based at NAS, Willow Grove, Penn. Both operated under the Commander of this Task Element from Hangar #2 at NAS, Brunswick, Maine, for this operation.

The aircraft from this element were parts of squadrons currently on active duty. It is thought that evaluation of their performance should be made in the same manner as all other active duty squadrons participating in this exercise, taking into consideration that this element was the only element operating from NAS, Brunswick, consisting of portions of 2 squadrons and both portions operating in a unified command away from their permanent duty stations.

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In evaluation of the "integration of" these "reserve forces", it should be noted that these forces are not the usual reserve forces that return to their individual civilian pursuits after the exercise but forces that will be returning to home stations and engaging in the usual fleet squadron activities. It should be expected that their capabilities and efficiencies as ASW forces should steadily increase rather than "fall off" as might be the case with the usually participating "reserve forces".

It is noted that this element was listed in reference (a) as being without nuclear attack capabilities. The aircraft in this element were configured for such attack capabilities; however, the personnel had not been trained in the reserve training command in the loading and use of these weapons. It is anticipated that this training will be given at the permanent duty station early in the coming year. This exercise has demonstrated that plans have not been made to give recalled reserve forces a capability of mounting a nuclear attack with ASW forces in less than 6 months or longer after recall. It is recommended that positive steps be taken in the reserve training command to provide this capability to their commands now and eliminate this unnecessary time lag. If nuclear attacks are going to play an important part of our ASW program it is axiomatic that all of our ASW forces, including all reserve forces, be trained in this type of attack as soon as feasible.

CTE 81.2.1.6 COMMENT:

TE 81.2.1.6 was composed of Air Anti-submarine Squadron SEVEN THREE THREE and Air Anti-Submarine Squadron NINE ONE FIVE. In addition, an OPCON Center plus Air Intelligence/Operations teams were established. Both of these units were well co-ordinated and effectively utilized. Command relationships during this exercise were considered outstanding. The following general comments are offered:

In cases where the participating units are under the operational control of one command, while the Air Station comes under another command, it is considered necessary that sufficient lead time for an impending exercise be granted in order that the Air Station concerned may acquire the support items necessary for the success of the operation. This is particularly true in the case of Reserve Air Stations when operating with active fleet squadrons. Co-operation by Naval Air Station, South Weymouth and the facilities provided for OPCON and operations were excellent. In order to improve future exercises of this type, it is recommended that personnel with a definite background in ASW procedures and tactics be ordered for TAD in connection with OPCON and AI functions.

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CANUS SLAMEX 1-61 was the first major exercise in which VS-733 and VS-915 participated since being reactivated. There was a noted improvement in the performance of aircrews and maintenance personnel as the exercise progressed. In particular, availability of aircraft steadily improved from 60% to approximately 80% at FINEX.

Training and experience gained by the participating squadrons was considered invaluable toward achieving maximum readiness in ASW.

Exercises of this type should continue to be scheduled in an endeavor to improve the ASW readiness against a major threat of missile launching submarine.

Since there were approximately one hundred surface targets including Soviet Trawlers in the area assigned TE 81.2.1.6, it became readily apparent that present day airborne detection equipment leaves much to be desired. High priority research and development in airborne and classification equipment must be vigorously pursued if airborne ASW forces are to be effective members in the defense of the United States.

CTE 81.2.1.8 COMMENT:

The training received by this element as a result of this exercise was both timely and valuable. The experience gained has increased the capabilities of both squadrons to perform their assigned mission. The general operation was also considered to be of great assistance in bringing out areas where additional training is required.

The element OPCON center was operated by Reserve personnel on TAD with little or no past experience in this type operation. Under direction of TAR officers furnished by NARTU Lakehurst the OPCON operation was effective. Utilization of qualified personnel would result in a better co-ordinated OPCON team and would require less time for initial organization and training.

Element communications in general were good during the entire exercise. Voice communications were handled on assigned UHF frequencies with better results than HF frequencies. The NAS Lakehurst communication facilities were an invaluable aid in the success of the exercise, and co-operation was excellent.

Safety of flight was maintained at a high level. The ASR unit was helpful but inadequate under minimum weather conditions. Installation of a GCA unit, high intensity runway lights, and approach lights are considered to be an urgent necessity. NAS Lakehurst Operations provided, in co-ordination with McGuire AFB, a complete departure and recovery plan. Because of claimed

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traffic loading, McGuire center would not accept IFR clearances during VFR weather which prevented procedure practice considered to be a standard safety requirement.

The Operation Order and FAW-3 Air Memorandum combined proved to be adequate for guidance of the exercise. The aircraft summary and the narrative report are excellent aids in de-briefing and are effective tools for providing permanent information. The time interval between the detailed briefing at NAS Quonset Point and COMEX was extremely short which made it very difficult to properly brief the complete element including OPCON personnel furnished by CNARESTRA with varying reporting/departure dates.

Co-ordination of the element mission through the active co-operation of the two squadrons operating in harmony throughout the exercise was excellent. No difficulties were encountered in this combined operation at Lakehurst.

There were no material or supply problems of any serious consequence during the exercise. The element enjoyed excellent co-operation from NAS Lakehurst supporting departments. Average aircraft availability during this period was 72%.

A summary of CTE 81.2.1.8 exercise findings follows:

A greater time allowance between detailed briefing on the OPCODE and COMEX.

More consistent and realistic reporting dates for assigned TAD personnel.

Element 81.2.1.8 could have supported approximately twice the "on-task" aircraft assignments that it was allowed, including coverage as Middleman for TE 81.2.1.5.

Funding of an OPCON improvement program at NAS Lakehurst is requested. Specific project requirement to be submitted separately.

Immediate attention to providing NAS Lakehurst with an all-weather capability is considered a definite requirement.

An S2F capability to take advantage of SOSUS requires improved ON-TASK time, better communications and greater navigational aids than presently available.

Some reduction in the volume of message traffic is seen possible and highly desirable.

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The success achieved by the element in this exercise is considered admirable and is credited to a high degree of co-operation received from all participants.

CTE 81.2.1.4 COMMENTS:

The following comments comprise an evaluation of squadron effort, station support and overall results achieved in selected areas during the exercise.

Four flight crews were utilized.

Maintenance manning was equivalent to a level force of about 40 men.

Planning and staff work for Maintenance, Operations and Communications involved about 10 officers who were assigned to obtain maximum advantage of the training opportunity afforded by the exercise.

OPCON Personnel.

Officers detailed included 3 from NAS New York Training Department and 11 reserve officers on special ACDUTRA (14 days). Seven of this group were AIs.

Enlisted men detailed included 4 from VS-837, 14 from VP-832, 1 from NAS New York and 3 special ACDUTRA reservists. During the exercise, 2 additional VP-832 CW operators were assigned to augment the 4 originally assigned. Except for CW operators, this level of manning was in excess of that required to handle VP and VS operations as the tempo encountered in the exercise increased.

Support Personnel. Air controllers, aerographers, storekeepers, galley and maintenance personnel were not augmented, but satisfactory support was obtained by extending duty hours. It is noted that a flight surgeon or doctor was on board only during normal working hours while the exercise was conducted.

Maintenance. Squadron personnel assigned to SLAMEX provided 24 hour coverage. Availability as reported in Forms Tan averaged 2 aircraft per day. Analysis of data reported in enclosure (2) reflected a slightly higher availability. It is suggested that the Form Tan be revised to include an estimated availability after 12 hours to provide a better availability forecast. Experience showed that 2/3 of our aircraft returned from sorties with discrepancies, primarily in avionics equipment, which required approximately 24 hours to correct. It is felt that the squadron maintenance capabilities were essentially reached in this period.

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Operations. NAS New York was open for all-weather operations on a 24 hour basis. IFR departure and arrival procedures were satisfactory after minor questions were resolved. No ATC delays were encountered. It is suggested that graphic depiction of ALTREVs and corridors be considered as a simpler means of describing IFR procedures than the OPORDER text. Further training and co-ordination of flight crews in procedures related to ECM, communications and tactical support was accomplished in this exercise period.

Communications.

Air/Group Communications - Communications with base were generally unfavorable. There were four instances in which VP-832 aircraft were not in contact with NAS New York for periods of two hours or longer, and an uncertainty phase SAR sitrep was sent once. Three VP-832 aircraft departed off task early because of poor communications. Of the frequencies assigned, 9001 and 4714.5 kcs were approximately 50% reliable for position reporting. Contact on these frequencies was made consistently only when the aircraft were within 60 nautical miles of NAS New York. Approximately half of all VP-832 position reports on CW had to be relayed through surface units, other aircraft or ground stations other than New York. Vocié HF frequencies, particularly 3088 kcs, produced better results and were utilized as the primary flight safety guard frequencies during the latter stages of SLAMEX.

Aircraft Communications Equipment and Operation - The condition of aircraft radio equipment was a serious deterrent to air/ground communications. ART-13 transmitters, although serviced, were unreliable because of inadequate preventive maintenance in the past. Auto-tune unit slippage made it necessary to retune and reload the transmitters when changing frequencies. Lack of recent operator experience under poor operating conditions also limited communications. As the exercise progressed the experience gained improved this situation. An additional handicap on the operators was the lack of ACP 131 publications. Only one ACP 131 has been issued to the squadron despite the fact that additional copies have been on order for over a month. The lack of this publication caused at least one delay in handling aircraft communications.

Base Radio - Another limiting factor was the base radio installation at NAS New York. With outdated receivers a high noise level an extremely strong signal input was required to copy communications on CW. The aircraft frequently were unable to read New York while copying other stations which possibly is attributable to the poor antenna installation at base radio. VP-832 provided two operators for the base radio CW circuits, while NAS New York and reserve personnel provided four additional CW operators. This assignment of personnel placed a burden on the squadron avionics division by reducing the number of men available for maintaining aircraft radio equipment.

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Message Traffic - There was a delay of as much as six hours in the receipt of SLAMEX messages in OPCON until NAS New York joined the NAVOPNET on 9 December. This required the transmission of a number of messages via the ASW hotline to insure rapid delivery. The situation was greatly improved after 9 December, but the physical location of base communications (1.2 miles from the OPCON) still led to delay in message delivery.

General Comments - SLAMEX provided invaluable experience for VP-832 radio operators, both in the air and on the ground. However, until the present status of the radio equipment in the aircraft and the base radio is improved, flight safety monitoring from NAS New York is only marginal.

Experience gained from CANUS-SLAMEX 1-61 demonstrated the controlling limitation which lack of aircraft and avionics parts and components places on operational readiness. Additional limitations imposed by the low maintenance capabilities of recently activated reserve squadrons were also apparent, but improvements in this area can be seen daily. On the positive side flight crew personnel are considered entirely capable of performing OPCON, intelligence and communications functions independently.

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CANUS SLAMEX 1-61 ANALYSIS

- CHAPTER I GENERAL (Secret) (18401)
- Section 1 - Introduction
- Section 2 - Summary of Results and Conclusions (Secret)
- CHAPTER II EXERCISE DESCRIPTION *(Secret)
- Section 1 - Intelligence
- Section 2 - Narrative
- Section 3 - Forces Taking Part
- Section 4 - Exercise Setting and Weather
- CHAPTER III TACTICAL ANALYSIS (Confidential)
- Section 1 - Contact Analysis
- Section 2 - Submarine Transit Tactics
- Section 3 - Air Operations
- CHAPTER IV SOSUS ANALYSIS *(Secret)
- Section 1 - Introduction
- Section 2 - Overall Tactical Plan and Contact Reporting Procedure
- Section 3 - SOSUS Detection and Evaluation Performance
- Section 4 - SOSUS Surveillance Performance
- Section 5 - SOSUS Tactical Reporting Performance
- thereon.
- *Classification of individual pages as shown thereon.

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Chapter I

Section 1

Introduction

1. The post-exercise analysis of Exercise CANUS SLAMEX was conducted by COMASWFORLANT and the analysis team convened at the Headquarters on 8 January 1962. The analysis team was composed of representatives from the following commands:

COMFAIRQUONSET
CANCOMARLANT
COMFAIRWING 3
VP-21
VS-31
VP-933
VS-880
COMSUBRON 2
COMFAIRWINGSLANT
COMOCEANSYSLANT
LANTFLTASWTACSCOL
Staff personnel of COMASWFORLANT

An exercise critique was held at the LANTFLTASWTACSCOL on 31 January 1962, following the analysis.

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Chapter I

Section 2

Summary of Results and Conclusions

1. CANUS SLAMEX 1-61 developed the following statistical results.

Participating submarine penetrations	6
Missile launches planned	14
Submarines detected and reported prior to first missile launch	5
Submarines detected by mobile forces prior to launch	4
Submarines attacked and killed prior to first missile launch	*3
Submarines attacked and killed during missile launch	0
Missile launches prevented	*4 (+ 2P)
Percent success in preventing missile launch	*33%

* TUSK attacked and killed by umpire rules before launch but validity of contact cannot be positively assessed, and her launch is only considered as possibly prevented.

2. A summary of genuine contacts as determined in post exercise analysis is shown in the accompanying figure. Only the first genuine SOSUS contact on each submarine is shown. The detections on each submarine were as follows:

a. TORO. The first (and only) genuine SOSUS line of bearing (K-25) on TORO was reported while she was 125 miles from the coast, 2 days and 4 hours before launch; but no further detections and no localization were made until she surfaced for missile launch. At this time she was taken under gunfire attack (K-37) and her launch prevented. Launch position was 60 miles from Long Island. After launch TORO was detected by DD sonar (K-42) and successfully attacked again.

b. BLENNY. The first genuine detection on BLENNY was a SOSUS bearing while she was 400 miles from the coast, 8 hours after COMEX and 5½ days before launch. The first valid position estimate was a SEP 7 hours later. Two days later, she was detected by DD sonar at the edge of the SEP and placed out-of-action, still 250 miles from the coast and 3 days prior

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**is withheld pursuant to section
est retenue en vertu de l'article**

15(1)

**of the Access to Information Act
de la Loi sur l'accès à l'information**

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to launch time. Three more valid SEPs were passed (K-26 and K-32 twice) prior to launch; and although she launched from the center of the latter SEP, no further localization by investigative forces was obtained until a DDE detected her on radar (K-39) when she surfaced for missile launch. She was killed following this radar detection. After going back into action she was again detected by DDE sonar (K-41); but this contact resulted from a radar contact while she was out-of-action and it is not counted for analysis purposes.

c. SAILFISH. The first genuine detection on SAILFISH was [REDACTED] 2 days and 18 hours before launch time. The first valid position estimate was an SEP (K-24) 11 hours after the initial bearing while she was still 225 miles from the coast. No other genuine contacts on SAILFISH were made, and she launched missiles on schedule.

d. TUSK. The first genuine detection on TUSK was a [REDACTED] The first valid position estimate was an MBSPA (K-16) 13 hours later. SOSUS then tracked TUSK almost continuously up to launch point reporting 6 more valid position estimates that contained her. As a result of this information, investigative forces shadowed TUSK closely and finally made an attack almost 2 days before launch time. Due to a misinterpretation of umpire rules, TUSK did not come up to check the validity of the attack, and hence the validity of the contact could not be assessed even though she is ruled out-of-action by the umpire rules. Her missiles are not counted, therefore, as launches planned or prevented in computing the success in preventing missile launches. The same problem arose again (K-38) after missile launch, and the DDE sonar contact in that situation also could not be positively assessed.

e. ASTUTE. The first genuine detection on ASTUTE was [REDACTED] 5 days before launch time, [REDACTED]

[REDACTED] and no further genuine contacts were made. ASTUTE launched on schedule just 30 miles off the coast.

f. NAUTILUS. As in previous SLAMEXs, the nuclear submarine was operated below the SOSUS detection threshold and was not detected before launch. She averaged 5.75 knots in transit. NAUTILUS was placed out-of-action just before FINEX when her flares simulating an attack on DEALEY were sighted by an aircraft; but her attack on DEALEY was also assessed to be successful.

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3. The above results were obtained in weather and sea states ranging from "severe" to just "poor", and electrical storms hampered communications to a serious extent. As a result, escorts left assigned areas to go into port to fuel, and an Argus working a genuine radar contact on ASTUTE had to leave the scene to reestablish communications with base. On the other hand the kill on BLENNY and the possible kill on TUSK were derived from the exercise condition which permitted an attack on unidentified submarines within 500 miles of the coast before the outbreak of a general war.

4. Aircraft coverage was moved in as the exercise progressed thereby leaving the outer areas relatively unprotected. Since only SAILFISH was launching from the outer area, the exercise results were not significantly affected; but SAILFISH was just barely able to launch under limited air coverage because of serious material problems and might not have completed her launch at all if more surveillance had been provided. Aircraft search policies varied widely from squadron to squadron and from flight to flight for no apparent reason. The very limited use of radar under conditions of low visibility is not understood; in some cases the decision not to use even intermittent radar permitted the submarines to reduce detectability to SOSUS and JEZEBEL by running on the surface.

5. As in SLAMEX 1-60 and LANTBEX 1-61, improper briefing resulted in attacks on a non-exercise submarine in a submarine haven.

6. Attack signals and/or grenades proved to be very unsatisfactory. The analysis of a successful attack is dependent on the submarine hearing and recognizing an attack signal; and consequently in two attacks in CANUS SLAMEX 1-61 the targets could only be assessed as possibly genuine contacts.

7. SOSUS.

a. The need for further study of British "A" class submarine signatures in order to recognize contacts that are printing but not reported was suggested. This requirement obviously extends to other non-US type submarine signatures also.

b. Many results attained by SOSUS are still unexplained and further study is needed to develop the full potential of the system. In particular, one submarine in this exercise was far more detectable while snorkeling than any of the others, and no area dependence or previous history of noisy operation could explain it. Another submarine was quite detectable on the surface (two multi-station contacts were made on her on the surface) but again no satisfactory explanation could be offered.

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c.

d. The validity of targets reported to investigative forces was consistent with SLAMEX 1-60 results: about 44% of targets reported in CANUS SLAMEX 1-61 compared with 38% in SLAMEX 1-60 were genuine. The validity of targets reported in less than one hour was 35% in CANUS SLAMEX 1-61 compared with 25% in SLAMEX 1-60.

e. Communications delays on land-line circuits in SOSUS were significantly reduced from SLAMEX 1-60 as shown below:

	<u>1-60</u>	<u>1-61</u>
* Time delay from initial contact until DTG of 1st grid messages	40m	26m
Time delay from initial contact until TOR first grid by CTF 302	90m	54m
Time delay from initial contact until TOR first grid by CTG 81.2	90m	72m
Time delay from initial contact until TOR CTG 81.1 evaluation to CTF 302	3h	1h 30m
Time delay from initial contact until TOR CTG 81.1 evaluation to CTG 81.2	3h	2h 12m

NOTE: Time delays to CTF 302 and CTG 81.2 are compared with the time delays to CTG 81.4 in SLAMEX 1-60. All values shown are median time delays.

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Chapter II

Section 1

Intelligence

1. The intelligence generated for CANUS SIAMEX was, at the outset, divided into general and special situation reports. The general situation reports attempted to set a realistic international atmosphere wherein relationships between the West and the Soviet Bloc steadily deteriorated as a result of various diplomatic, economic, political and military actions on both sides. The special situation reports were confined to areas of primary naval interest and were generated for the twofold purposes of:

- a. Emphasizing that any military action by the Soviets against the U.S. will probably involve the commitment of their naval forces.
- b. Provide some intelligence to the commanders before and during the play of the exercise as to the scope and direction of attack.

2. In the first summary, contacts K-1 through K-7 were generated. The summary invited attention to contacts K-4 through K-7. One of these, K-4, was described as "modified Whiskey". The three remaining provided evidence that the Soviets were attempting to spring loose submarines into the North Atlantic. Assuming that these were missile submarines, an attack could have been made in the exercise area at any time after the first of the month. K-8 through K-11 were generated in subsequent summaries. K-8 and K-9, although only classified possible, were of interest because, assuming they were valid contacts and missile submarines moving to take part in the initial launch, then their movements indicated that the time of launch might be later than the first week of December, as was previously possible. K-11 was the last of the simulated contacts since, after the summary was issued, K-12, was generated by exercise forces. Further, since SOSUS was also holding contacts of the exercise submarines maneuvering for their transit and the intelligence officer held the submarine OpOrder, to have generated further contacts in the summaries would have given unfair advantage to one side or the other.

3. Thereafter both general and special summaries were combined and devoted to providing intelligence of all kinds which would indicate the possible time of launch without actually coming out and giving the hour. These summaries did not try to assess the validity of the various exercise contacts in any great detail. As previously noted this would have given one side or the other an unfair advantage. Rather Intelligence and Operations agreed as to the validity of various contacts, and tried to weave a sensible pattern of other world and operational events around them.

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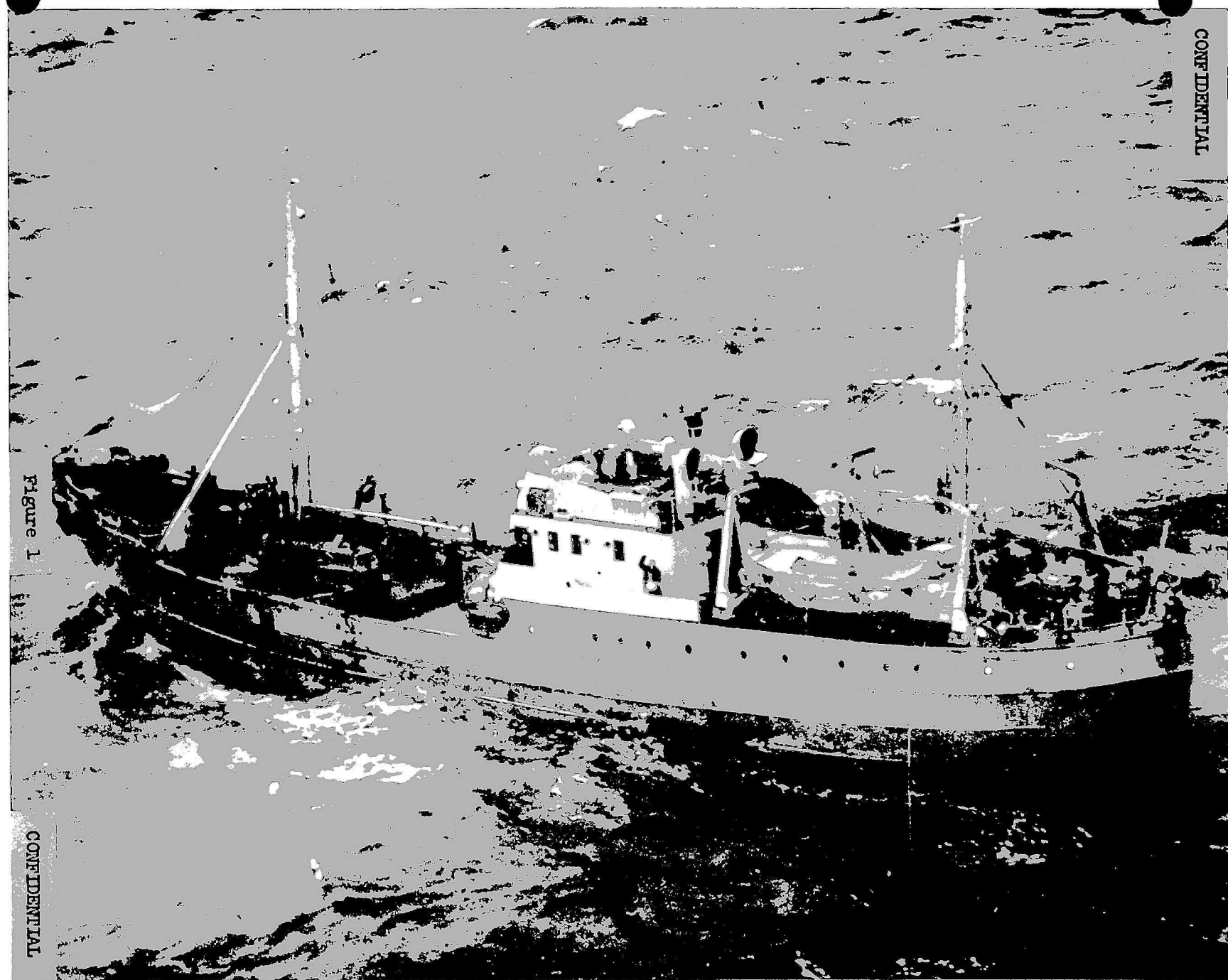
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Figure 1

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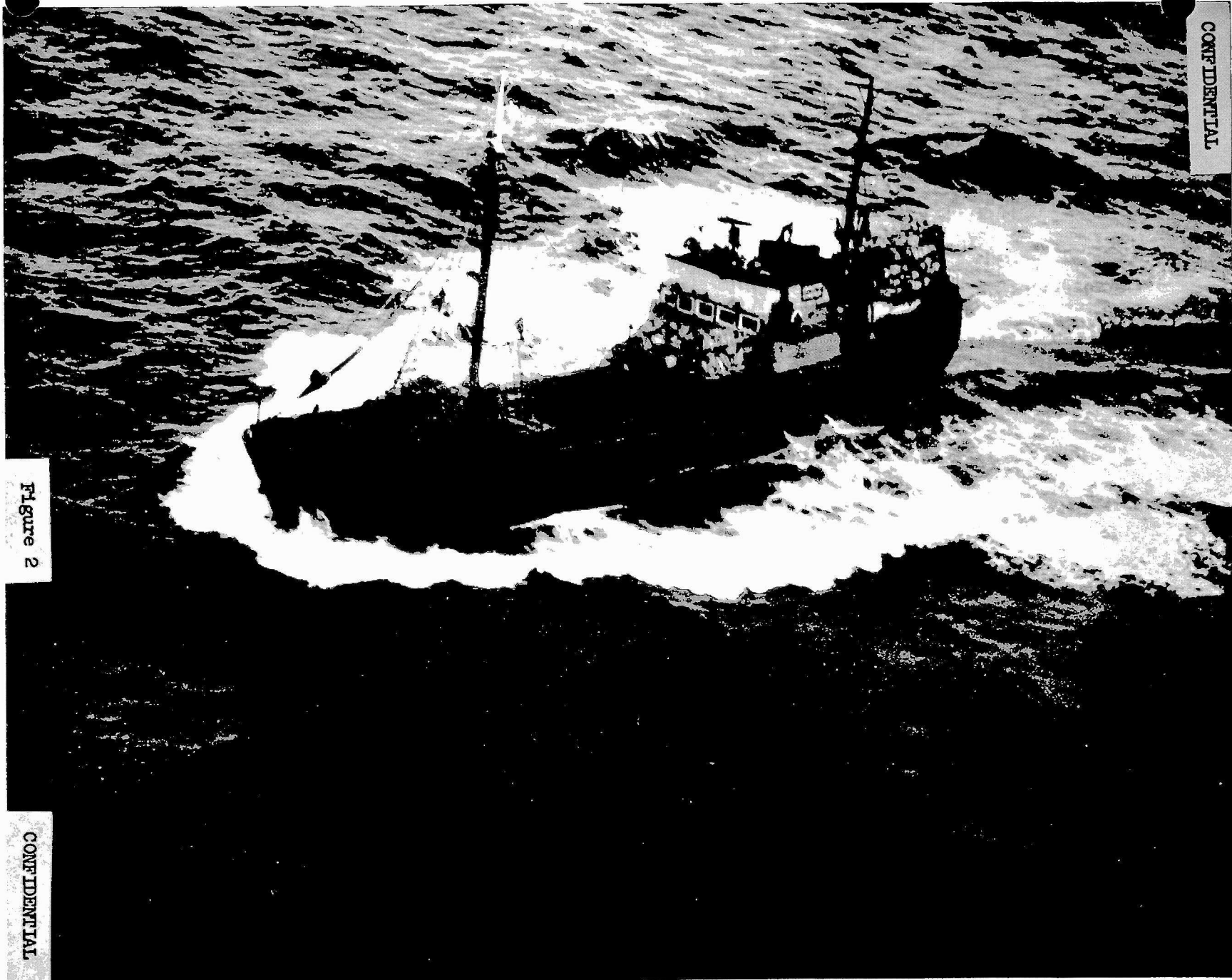
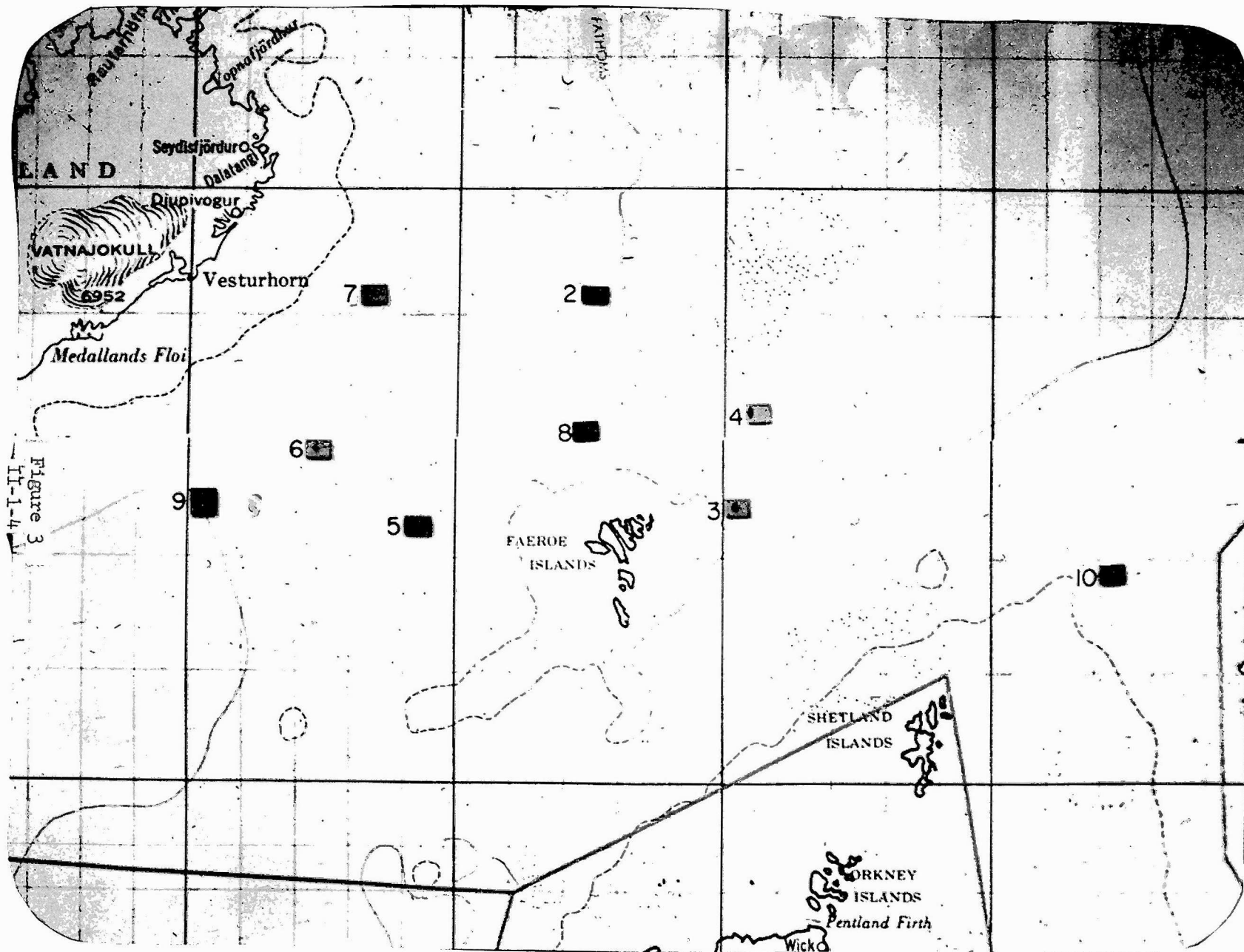


Figure 2

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Chapter II

Section 2

Narrative

3 December

Operational Control Centers were manned, and the first of the simulated intelligence messages was released.. (A summary of these intelligence messages is given in Chapter II, Section 1.)

4 December

Phase I commenced at 041300Z December 1961. All surface and submarine units sortied enroute to initial positions. Aircraft units were directed to locate and report all non-exercise shipping plus U.S. and Soviet trawler activity, and to attempt radio contact with other exercise forces. Numerous shipping contacts and fishing vessels were sighted throughout the exercise area. Communications were reported fair to good in Quonset but extremely poor in Halifax. Weather was good in all areas.

5 December

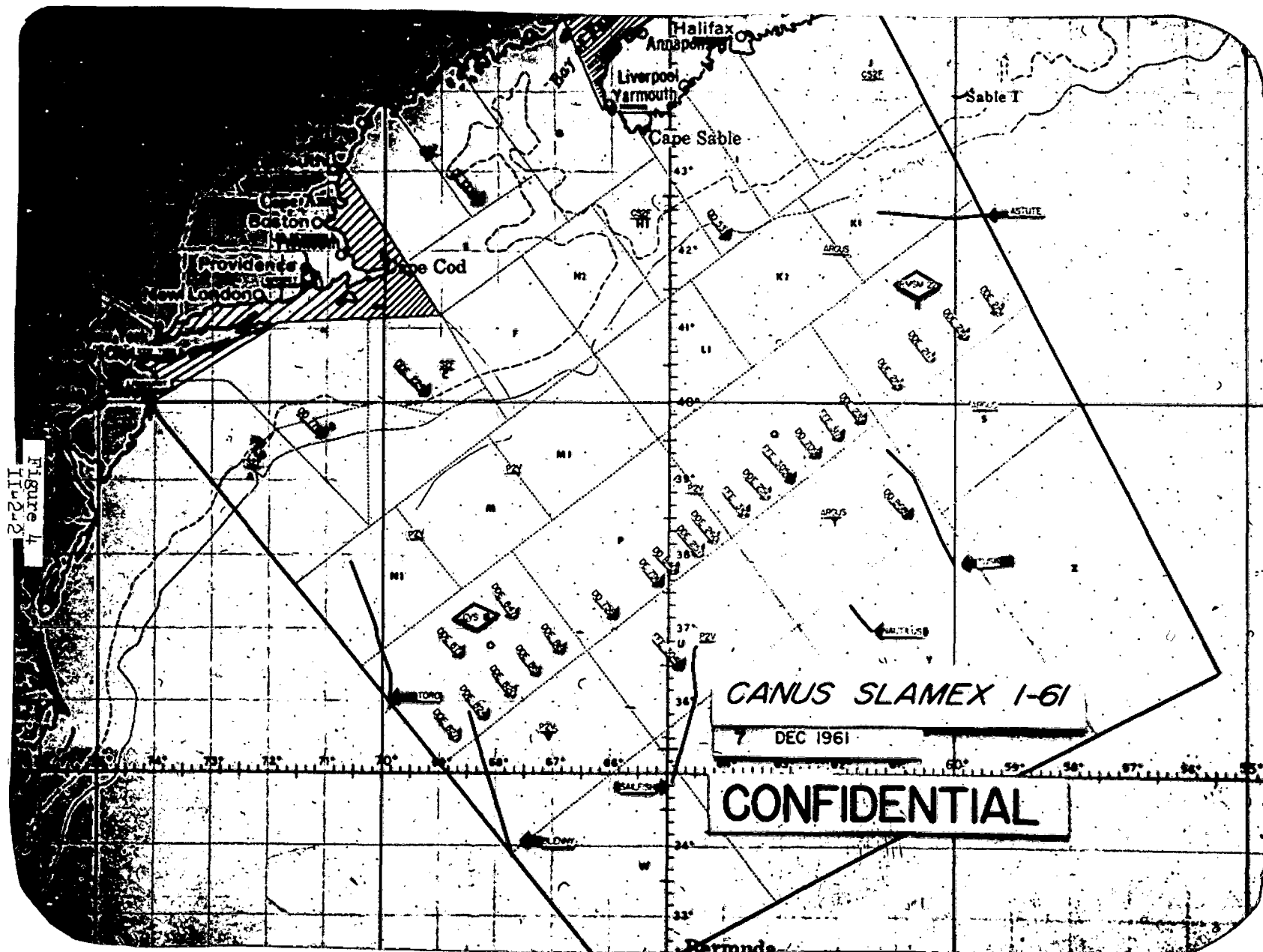
All units exercised at communications drills enroute to initial stations. Submarines transited on the surface, and defensive forces were directed to keep out of outer exercise areas in which some submarines were heading for initial stations. Weather and communications remained good except for the Halifax broadcast which was still extremely poor.

6 December

The HUK groups and most other surface units arrived on station. VP, MP, and VS area search continued except in the outer areas. SEVERN commenced fueling operations. 40 to 90 non-exercise surface units were reported throughout the area by patrol aircraft. The non-exercise submarine HARDHEAD was illuminated by patrol aircraft as she transited the area on the surface in a moving haven. Phase I ended at 062359Z with submarines on initial stations. Submarine movement reports had tipped-off defensive forces of some initial positions; and NAUTILUS, TORO and ASTUTE had been contacted by defensive forces at times on their surface transits, but there were no "warm datums" apparent. Weather and communications were generally good except for the Halifax broadcast which was still extremely poor.

7 December

Pearl Harbor Day and Phase II commenced. A severe weather condition with electrical storms and gale force winds began to move into the area.



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The first of many flare sightings were reported, all of which were later attributed to the electrical storms. Genuine contacts were obtained by SOSUS on TUSK and ASTUTE and by LOFAR on ASTUTE; and many false contacts were also reported. Because of the level of contacts received at CTF 81 Headquarters, Phase III was ordered into effect at 072100Z with control of forces decentralized to Quonset and Halifax. Quonset ordered the DD/Frigate line to pull back 50 miles closer to the coast. Under the OpOrder, any exercise submarine contacted after Phase III commenced was to be attacked at once. Both Norfolk and Halifax broadcasts were marginal.

CONTACTS: (Described in more detail in Chapter III, Section 1, Annex A)

There were 5 contacts designated this date. The submarine tracks and KILO numbers for each are shown in attached figures.

KILO 12 was designated after a sinker and ECM contact report from OUTREMONT. This was non-submarine, the nearest exercise submarine being NAUTILUS, 150 miles away and deep.

KILO 13 was designated after numerous Argus LOFAR, CODAR and MAD contacts followed by a segmented LOB position report from SOSUS. These were promulgated in the position shown even though the SOSUS position and one Argus LOFAR contact were quite near to ASTUTE. The SOSUS contact was genuine (the terms "genuine" and "possibly genuine" are used to describe the post-exercise analysis evaluation to avoid confusion with the evaluations made by the operating forces or headquarters during the exercise.) and 3 LOFAR contacts were possibly genuine on ASTUTE on 3 successive snorkel periods.

KILO 14. An S2F from Lakehurst reported a SPOOK which was subsequently designated KILO 14. S2F later sighted this target and identified it as a tanker but it was already in the system and designated.

KILO 15. CHAUDIERE gained sonar contact classified as possible submarine which CTF 81 designated KILO 15 in the position shown. This was non-submarine.

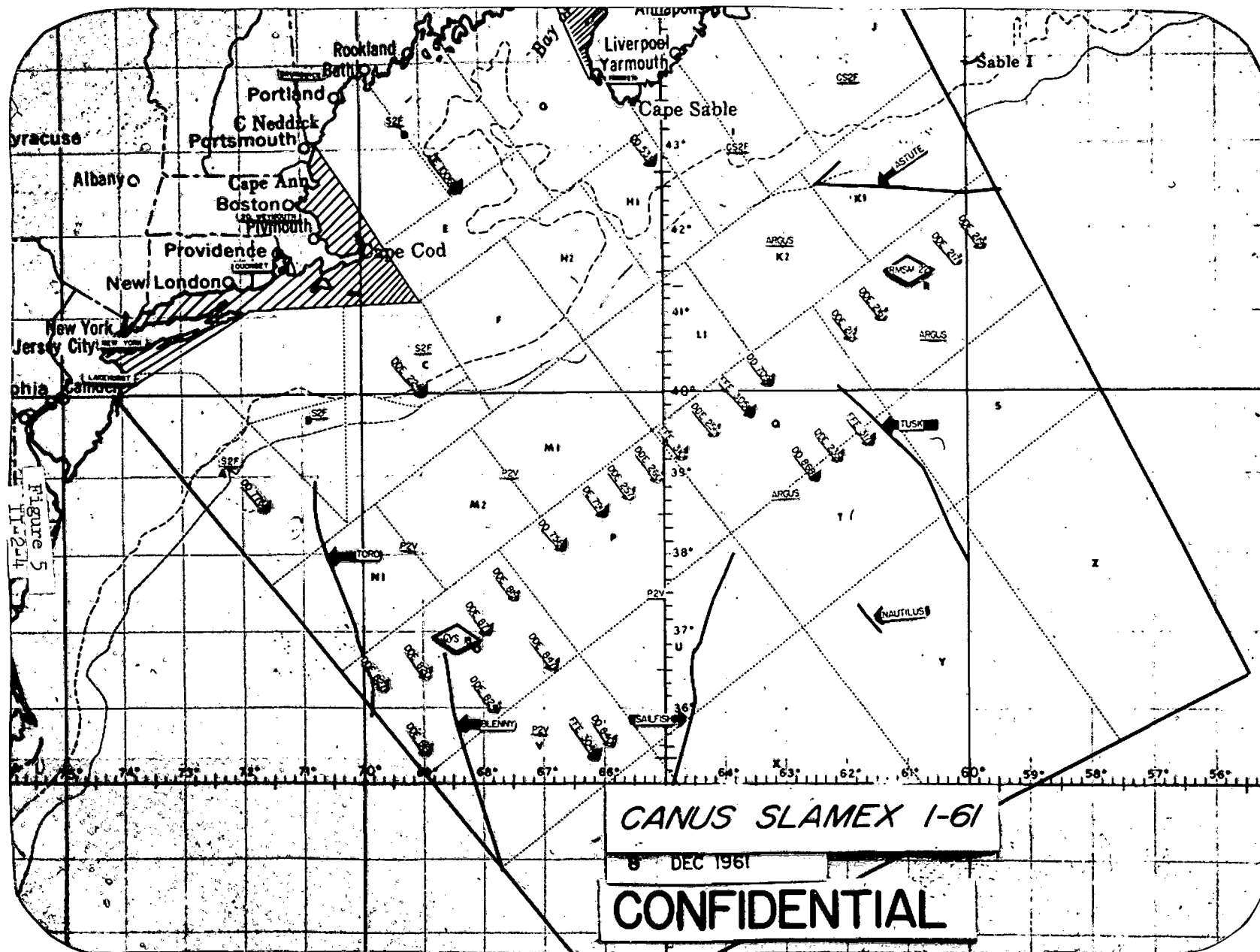
KILO 16. SOSUS obtained 3 target reports from the Shelburne array which were combined into an MBSPA designated KILO 16 as shown. An Argus assigned to search the area reported "positive" sighting of a submarine mast at 6 miles range followed by MAD, JULIE and LOFAR. CAP DE LA MADELEINE also reported sonar contact in the area. This was a valid SOSUS MBSPA on TUSK although quite large because of the small bearing drift on contacts from a single array, but Argus and frigate contacts were non-submarine.

KILO 17. There were two additional genuine contacts by SOSUS on TUSK this date which were combined into a SPA in the area shown. These

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were not designated as KILO 17 until the next day however.

UNDESIGNATED:

There were three additional SOSUS position estimates passed which were not designated, shown in the Figure by an "X". The center of the three was genuine on BLENNY, but she was 35 miles outside the circle. The other two positions were non-submarine.

8 December

Electrical storms continued with waterspouts, heavy lightning, Saint Elmo's fire, and more SLAMEYE reports. A P2V fire resulted from a hit by lightning. Another P2V was hit by lightning 3 times while on task causing HF failure, and BROWNSON was hit but no damage reported. Both HUK groups suspended flight operations for a time, and destroyer fueling operations were cancelled due to weather. Four destroyer/frigate types were ordered to port to fuel. Norfolk and Halifax broadcasts were still marginal.

CONTACTS:

The arrows show the submarine positions at the start of each day.

KILO 13. Argus got a sinker and LOFAR/CODAR in the KILO 13 area. A new SOSUS contact early this date resulted in an MBSEP as shown. The 30 mile circle of reliability just included ASTUTE as she rounded a sharp turn in her track; and she immediately left the area. The Argus sinker was genuine and the LOFAR/CODAR possibly genuine on ASTUTE but no localization was achieved. (Argus had to break off search in order to fly in toward shore to re-establish communications since no contact had been made with Air Control for three hours. BONAVENTURE was unable to conduct search in this area until 081800Z, 15 hours after first Argus contact and 11 hours after being assigned by CTF 302 to investigate these contacts, because of inability to establish communications with Argus in the contact area. Three hours after commencing air search in the K-13 area, BONAVENTURE had to secure flight operations because of weather.)

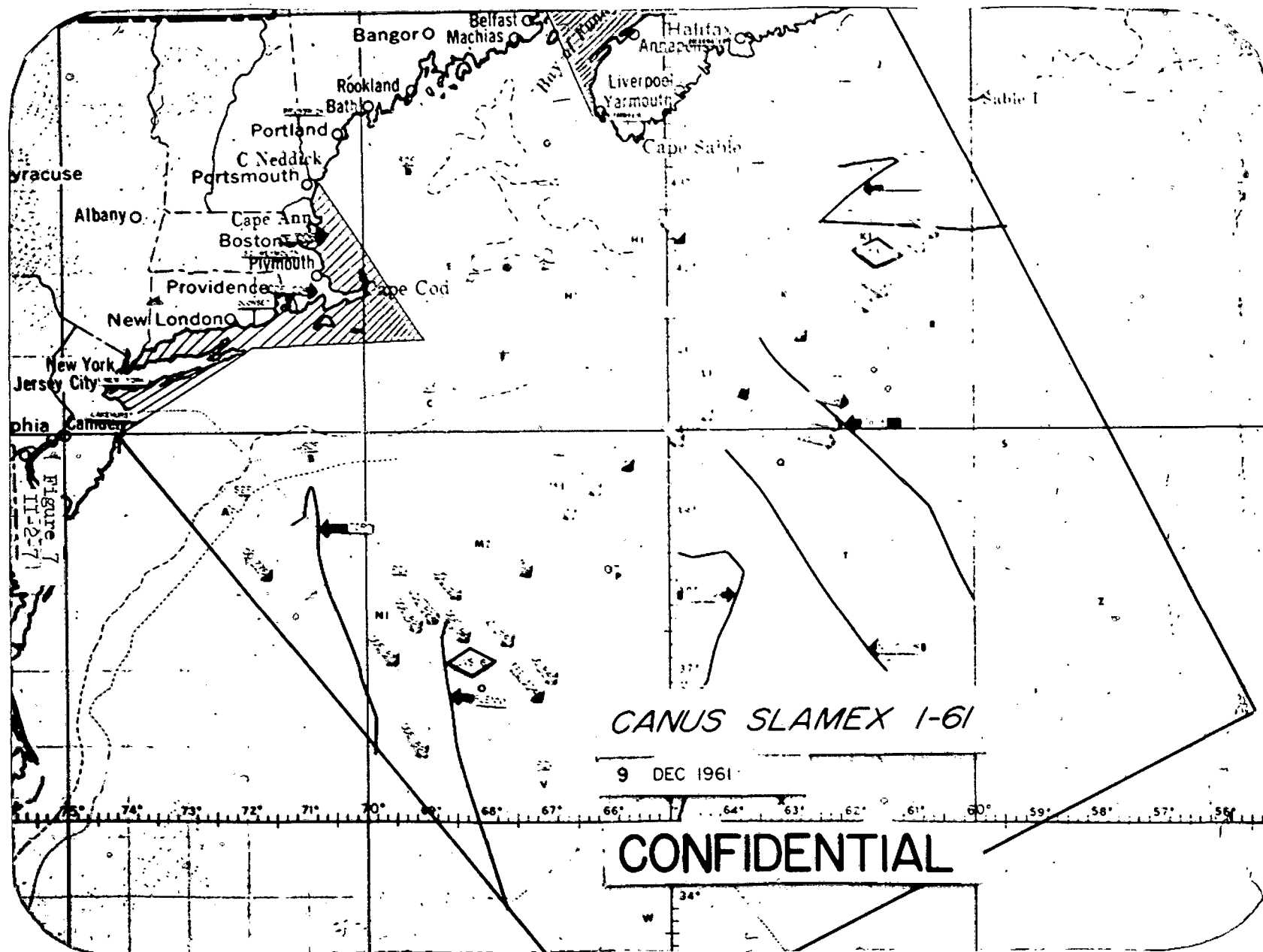
were gained

she rounded

estimate her position based on an assumed westward track until KILO 13 was finally closed on December 11th.

KILO 17. As mentioned in the analysis for 7 December, KILO 17 was designated from a SPA generated on December 7th and was genuine on TUSK who was 19 miles from the SOSUS Recommended Search Datum (RSD).

KILO 18. While prosecuting KILO 13, an Argus sinker and LOFAR/CODAR contact was reported and designated KILO 18. This was non-submarine.



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UNDESIGNATED:

Another SOSUS SEP was passed in the center of the exercise area, but it was not designated and in fact was non-submarine.

9 December

Gale force winds continued throughout the area, and additional surface units were ordered into port to fuel. HUK groups were able to conduct limited operations only; and VP search was reduced by a number of equipment failures and aborts. At 090800Z, the DD/Frigate line was pulled back another 50 miles. Norfolk and Halifax broadcasts were reported to be extremely poor from 090500Z - 091300Z; but another major communications difficulty was overcome when the on-line crypto installation at NAS, New York, became operational at 091400Z.

CONTACTS:

KILO 17. Two new SPAs were passed on KIL0 17 this date. Both were genuine and both contained TUSK. No contacts by other forces were reported on her however.

KILO 18 was reopened as a result of an Argus sinker, a sonar contact by HURON, and one VS MAD contact. (CTG 302.2 was investigating the K-13/K-18 areas with ARGUS and VS). None of these contacts were genuine and KIL0 18 was closed on the 11th without further contacts.

KILO 19 was designated from an SOSUS report of a separate submarine possibly in company with KIL0 17. After being re-evaluated to be the same target as KIL0 17, KIL0 19 was closed. This contact was genuine, and the SEP was within 17 miles of TUSK.

KILO 20 was designated from a large SEP near Cape Cod plus two P2V LOFAR contacts. None of these contacts were genuine.

10 December

Weather continued bad, and most S2F flights from Lakehurst, New York, Quonset, and South Weymouth were grounded. OUTREMONTE was withdrawn from the exercise for 12 hours to tow a disabled German freighter. For the first time in the exercise, however, no widespread communications difficulties were reported.

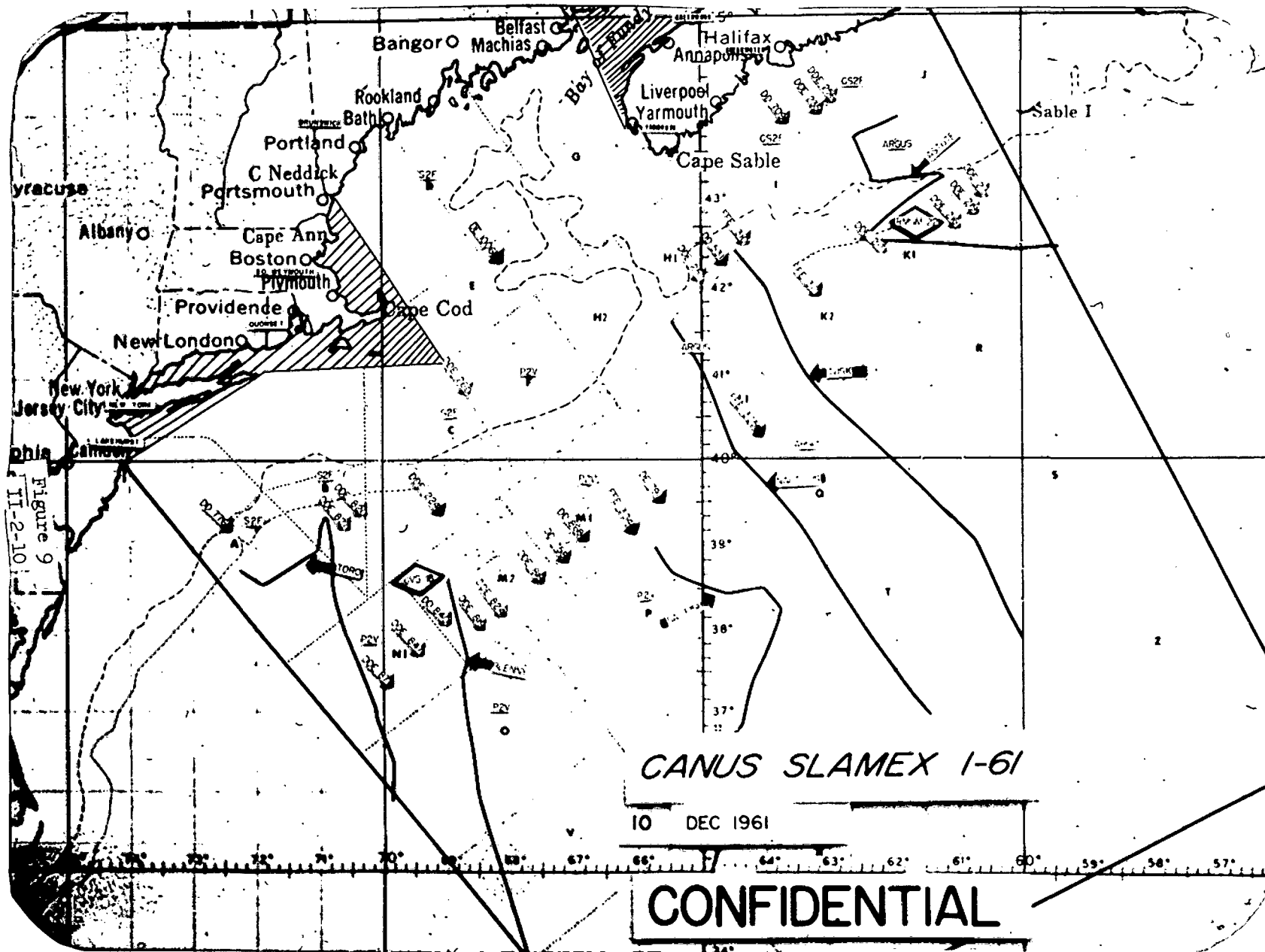
CONTACTS:

KILO 17. Two SOSUS positions were passed, one SPA and one MBSEP of radius 12 miles. Argus reported sinker, sonobuoy, visual and CODAR contacts. CAP DE LA MADELEINE and HAZELWOOD reported visual flares.

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plus radar and sonar contacts. The two SOSUS positions were genuine, the MBSEP circle containing TUSK, and the Argus sinker was possibly genuine on TUSK; but the other contacts were non-submarine.

KILO 22. An Argus sinker and reported SLAMFYE were designated KIL0 22, but these contacts were not genuine.

KILO 23. GLENNON reported a sinker and active and passive sonar contact and made several attacks at the position shown, which seemed to check with a reported SOSUS line of bearing. None of these were genuine, however, the nearest submarine being BLENNY some 55 miles away.

KILO 24. An SEP with circle of reliability radius 60 miles designated KIL0 24 was passed which covered SAILFISH's track, and NEW WATERFORD got LOFAR contact while investigating the area. The SEP was genuine on SAILFISH who was 41 miles from the center, but the LOFAR contact was not genuine.

KILO 25. Another SEP in the west was reported which covered TORO's track and it was designated KIL0 25. Later a new SOSUS LOB was added to KIL0 25. OWENS investigated and after finding many fishing boats in the area, the incident was closed. The original SEP was not genuine, but the added SOSUS LOB was genuine on TORO running on the surface.

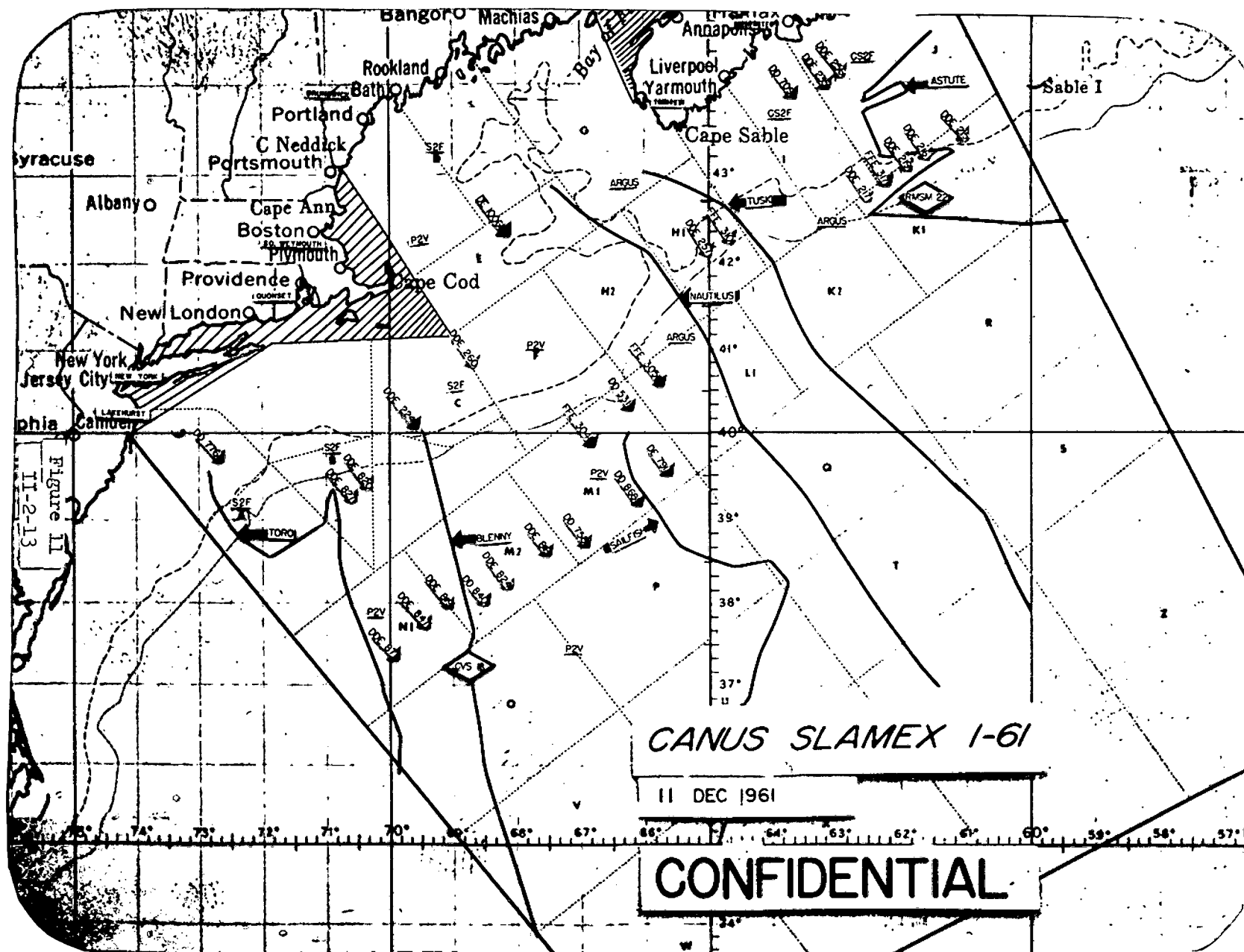
11 December

Communications again were relatively good even though flying conditions were IFR and WASP had cancelled flight operations for the first part of the day. Headquarters estimated that submarines could have reached launch positions and, therefore, stationed surface units in the probable launch areas and the HUK groups along the 1,000 fathom curve.

CONTACTS:

KILO 13 was closed without further contacts.

KILO 17. Flare sightings, sonar contacts and UQC transmissions were reported by CAP DE LA MADELEINE, LA HULLOISE and HAZELWOOD, but none of these contacts were genuine, the closest exercise submarine being TUSK over 40 miles away and under attack by CHAUDIERE. CHAUDIERE had gained sonar contact on TUSK at 110112Z and made six LIMBO attacks and one torpedo attack. TUSK heard "distant" attack signals but did not measure range in accordance with umpire rules; consequently, contact could not be positively assessed and was evaluated only as possibly genuine. SOSUS reported three different position estimates for TUSK's 110805Z position, the latter two being revisions of the earlier estimates. The first two estimates were far off, but the third was within 4 miles.



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KILO 25 was reopened on a J.C. OWENS sinker and ECM contacts in that area, and a New York based S2F reported a visual snorkel sighting; but none of these contacts were genuine.

KILO 26 was established from an SEP of 20 mile radius and S2Fs of TG 81.9 with HOLDER and OWENS were ordered to investigate. All units reported contact during the incident and attacks were made by the DDs. The SEP was genuine, containing BLENNY at 5 miles from the center, but all other contacts were non-submarine.

KILO 27. A S2F obtained a sinker followed by sonobuoy and MAD, and 2 attacks were delivered. ASTUTE was 55 miles away snorkeling without contacts and KILO 27 was assessed non-submarine.

KILO 28. An Argus got ECM contact followed by a sinker and made 2 attacks, but this also was non-submarine.

KILO 29. STRONG and NEW WATERFORD were ordered to search the KILO 24 area, and NEW WATERFORD reported LOFAR/CODAR contacts. A P2V also got LOFAR contact. Although SAILFISH was just 5 miles away, she was not operating her diesels and could not produce the signature reported on LOFAR. These contacts were non-submarine.

12 December

The hours of darkness during this period were considered the time for attempted missile launches. Surface patrols and maximum air surveillance were established near prominent navigational aids which might be used by an SSB without an inertial navigation system. Partly cloudy skies and low sea states favored ASW search until about 1200Z when rain moved in, consequently curtailing S2F flights from Quonset and Lakehurst. Communications remained good in most areas.

At 122247Z, CTF 81 ordered Phase IV (General War) as a result of 3 submarine HOTSHOT reports. Since the positions of these HOTSHOTS were inadvertently disclosed to CTG 81.2, they were promulgated to all exercise forces as simulated intelligence reports from merchant ships.

CONTACTS:

KILO 30. An S2F from South Weymouth operating north of Cape Cod got a sinker at 4 miles, followed by MAD and sonobuoy contact and conducted attacks. An assisting S2F got MAD contact and also made attacks. The pilots later reported their target was probably a wreck. This contact was non-submarine.

KILO 31. A P2V sinker with JULIE and MAD was designated KILO 31. GLENNON got sonar contact and made 5 attacks; but this also was non-submarine. ETHAN ALLEN plotted 23 miles away and the nearest exercise submarine was SAILFISH 46 miles to the Southeast.

KILO 32 consisted of two SEPs and a sonar contact by ALGONQUIN. BLENNY was 3 miles outside the first SEP circle of reliability but 16

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miles from the center of the 2nd; and her missile launch later was fired almost from the center of the latter circle. ALGONQUIN's contact was a wreck.

KILO 33. An Argus LOFAR/CODAR contact was designated KILO 33. Another Argus got a sinker and LOFAR contact nearby. The original contact was non-submarine, but the assisting Argus LOFAR was possibly genuine on TUSK who was snorkeling within 30 miles.

KILO 34. J. C. OWENS got a sonar contact 10 miles east of the Texas Tower while guarding a possible submarine missile launch area. TORO was on the bottom waiting to launch just 500 yards from the same buoy and heard the attacks and UQC transmissions. Later conversation between the two showed that J. C. OWENS had worked over a wreck not listed in her publications or charts.

KILO 35. An Argus ECM, MAD and CODAR contact followed by several attacks was designated KILO 35, but it was non-submarine.

KILO 36. An S2F sinker and sonobuoy contact near ASTUTE's track was designated KILO 36. The sinker was just 8 miles from ASTUTE's plotted position and was assessed possibly genuine, but the sonobuoy contact was non-submarine since ASTUTE was neither snorkeling nor cavitating.

KILO 37. J. C. OWENS simulated gunfire in a fog on two SPOOKS near a Texas Tower wreck buoy which was considered to be a likely navigational aid for a missile-launcher. In the process, she killed TORO who was surfacing for HOTSHOT and also killed an unfortunate trawler who was passing at the time.

KILO 38 was the contact designation of TUSK's HOTSHOT. No other contacts on KILO 38 were held this date.

KILO 39. RESTIGOUCHE contacted BLENNY by radar when BLENNY surfaced for her HOTSHOT and also saw a green flare as BLENNY fired her second missile. BLENNY exchanged fire with RESTIGOUCHE as RESTIGOUCHE closed to attack; and an interesting by-play developed (described in Chapter III, Section I, Annex A) wherein BLENNY finally surfaced out-of-action.

KILO 40 was the designation assigned to ASTUTE's HOTSHOT. It was correctly considered by headquarters to be the same contact as KILO 36.

UNDESIGNATED:

At 121342Z a P2V from VP-21 obtained a radar contact which was converted into a visual contact (snorkel and 2 periscopes) and attacked twice. This contact was ETHAN ALLEN (SSBN-607) conducting sea trials in a submarine haven which had not been covered in the P2V briefing.

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13 December

With the submarine missile attacks believed to be completed, forces were deployed to localize and attack submarines still in action. Weather conditions improved and shore-based VS coverage resumed although fog and rain limited both carrier and shore-based VS early in the period. Some thunderstorms moved into the area with a cold front and localized disturbances affected some aircraft HF communications. FINEX was signaled at 131600Z.

CONTACTS:

KILO 38. While investigating the reported HOTSHOT launch position of TUSK, ST. CROIX had a sonar contact and conducted a LIMBO attack. HAZELWOOD joined and made a depth charge attack and then ST. CROIX made another LIMBO attack. This contact was possibly genuine on TUSK who heard the attack signals but did not come up to measure the range (as required by the umpire rules if she did not want to roll the die). Since 3 attacks were made without a measurement of range, the umpire rules would automatically make her out-of-action.

KILO 41. BLENNY went back in-action at 131035Z (after KIL0 39 kill) but did not dive until regaining contact with RESTIGOUCHE at 131100Z. RESTIGOUCHE held radar contact on BLENNY while the latter was out-of-action and came over to investigate when her contact became a sinker as BLENNY dived. BLENNY put RESTIGOUCHE and COLUMBIA out-of-action in succession as they approached her, but an S2F made a successful attack on BLENNY using BLENNY's green flare firing signal as a flaming datum; however, BLENNY heard no attack signal and aircraft records did not show that PDC's were dropped. BLENNY put COLUMBIA out-of-action again at 1445; but RESTIGOUCHE, back in-action, was rejoining COLUMBIA just then and put BLENNY out-of-action at 1505Z.

KILO 42. TORO initiated valid attacks both on J. C. OWENS and RICH but received valid attacks from RICH and an S2F in return. By the dice, OWENS and TORO were out-of-action.

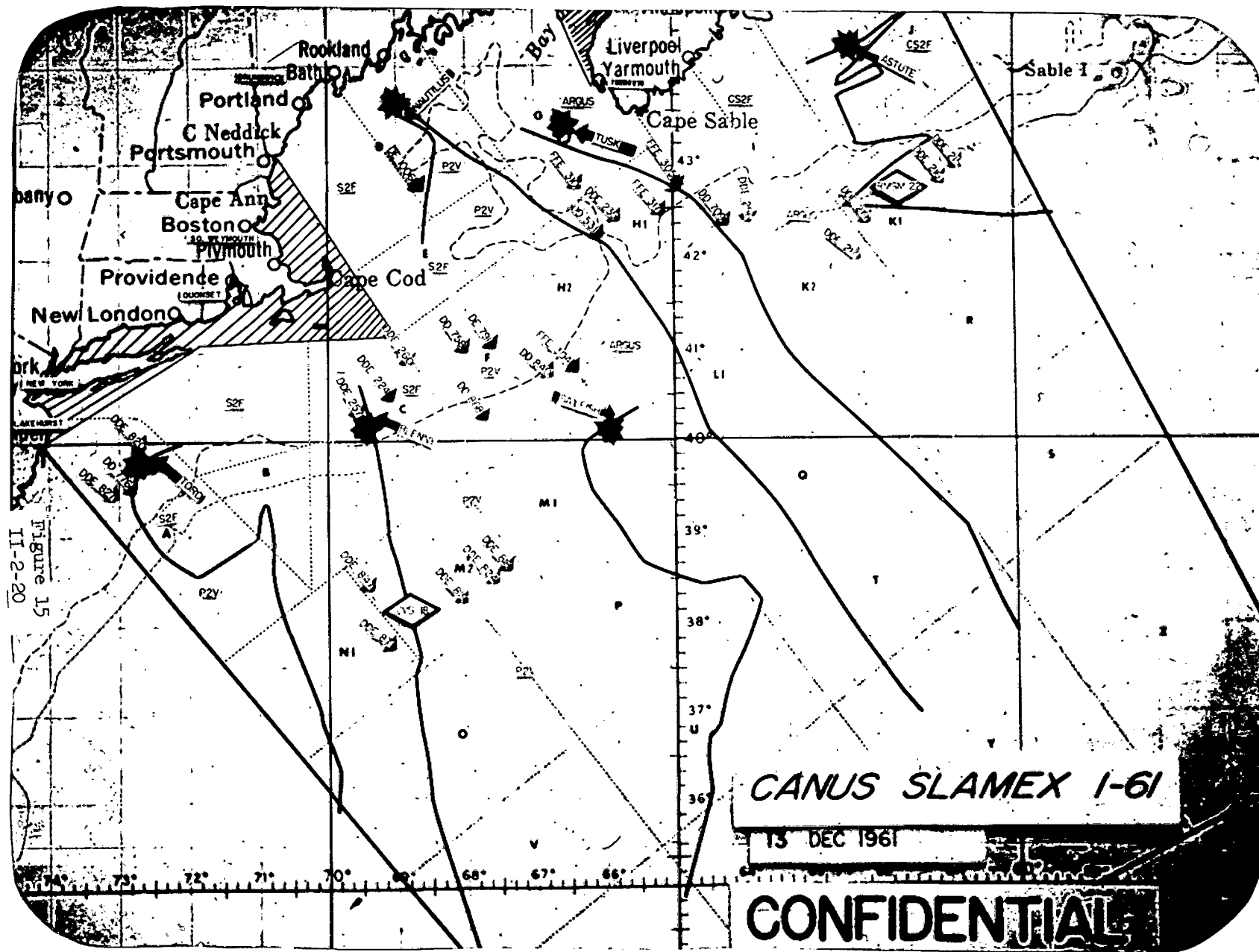
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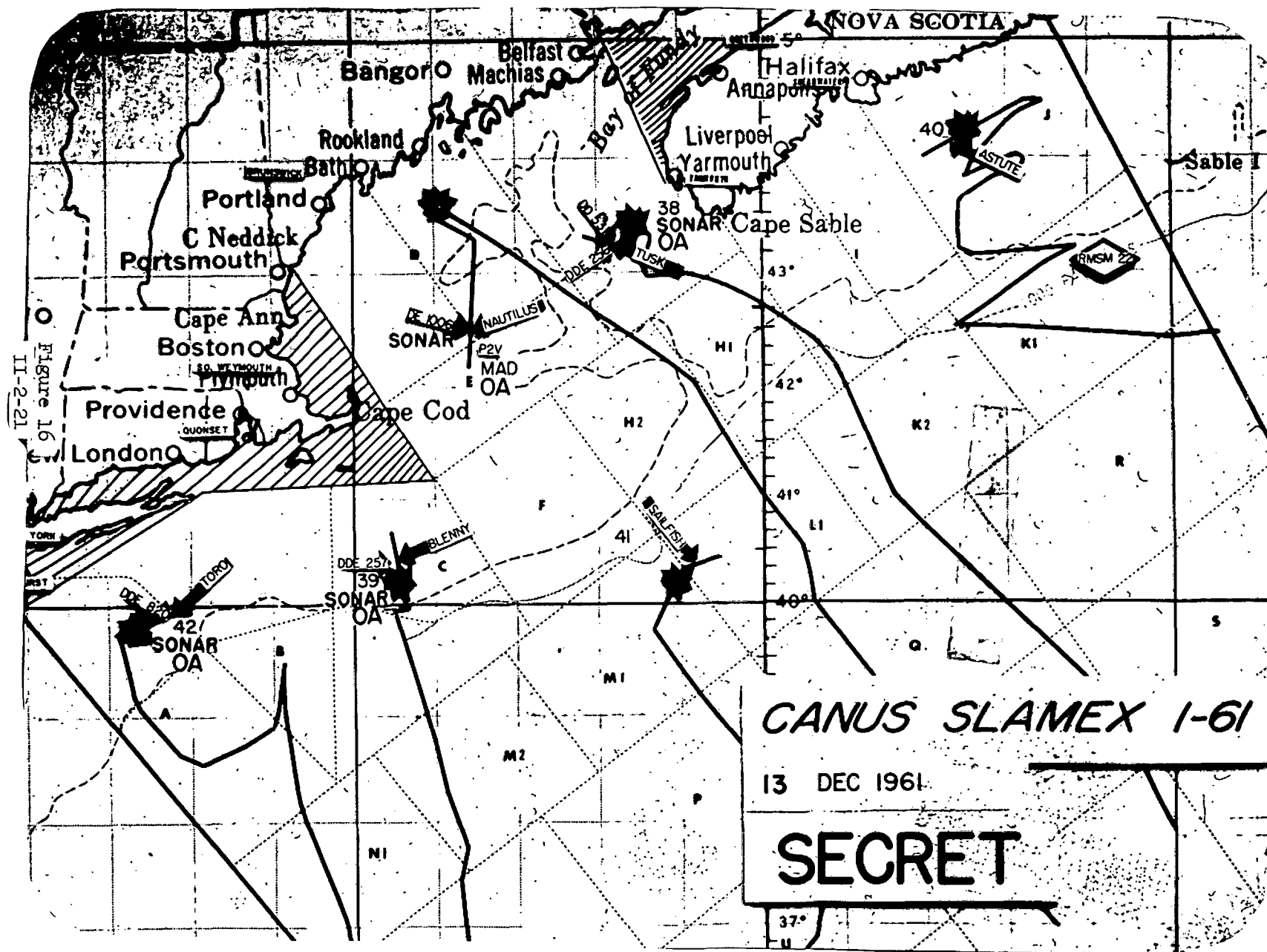
A duel between NAUTILUS and DEALEY with P2Vs commenced at 131430Z which would have been designated except for FINEX. NAUTILUS made an undetected approach on DEALEY who was working over a false contact with a P2V; but when she signalled an attack on DEALEY a P2V attacked the flaming datum left by the green flare. DEALEY and NAUTILUS both received valid attacks but neither declared out-of-action prior to FINEX.

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Chapter II

Section 3

Forces Taking Part

1. The following United States and Canadian forces, organized as shown, participated in Exercise CANUS SLAMEX 1-61:

a. Exercise CANUS SLAMEX Force

VADM E. B. TAYLOR
COMASWFORLANT

b. TG 81.1 Oceanographic System Group

CAPT A. R. GORDON

TU 81.1.1 Northern Oceanographic Unit

CO, NAVFAC, Cape May

TE 81.1.1.1 NAVFAC ARGENTIA
TE 81.1.1.3 NAVFAC SHELBURNE
TE 81.1.1.5 NAVFAC NANTUCKET
TE 81.1.1.7 NAVFAC CAPE MAY
TE 81.1.1.8 NAVFAC CAPE HATTERAS

TU 81.1.2 Southern Oceanographic Unit

CO, NAVFAC, ELEUTHERA

TE 81.1.2.1 NAVFAC ELEUTHERA
TE 81.1.2.3 NAVFAC SAN SALVADOR
TE 81.1.2.4 NAVFAC TURKS ISLAND
TE 81.1.2.5 NAVFAC RAMEY
TE 81.1.2.6 NAVFAC ANTIGUA
TE 81.1.2.7 NAVFAC BARBADOS

TU 81.1.3 Bermuda Oceanographic Unit

CO, NAVFAC, BERMUDA

TE 81.1.3.1 NAVFAC BERMUDA

c. TG 81.2 Quonset ASW Group

RADM B. E. MOORE
COMFAIRQUONSET

TU 81.2.1 Quonset Air ASW Unit

CAPT H. F. LLOYD
COMFAIRWING THREE

VP-10 (11 P2V - NAS BRUNSWICK)
VP-21 (11 P2V - NAS BRUNSWICK)
VP-661, VP-933 (8 P2V - NAS BRUNSWICK)
VP-832 (4 P2V - NAS NEW YORK)
VS-837 (10 S2F - NAS NEW YORK)
VS-915, VS-733 (20 S2F - NAS SOUTH WEYMOUTH)
VS-715, VS-935 (20 S2F - NAS LAKEHURST)
CVSG-62 (10 S2F - NAS QUONSET POINT)

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TU 81.2.2 Quonset Surface ASW Unit

CAPT D. G. DOCKUM
COMDESEVGRU TWO

TE 81.2.2.0 Surface Patrol
Element ALFA

CAPT C. P. NIXON, RCN

CHAUDIERE (DDE-235)
ST. CROIX (DDE-256)
COLUMBIA (DDE-260)(F)
RESTIGOUCHE (DDE-257)
CAP DE LA MADELEINE (FFE-317)
NEW WATERFORD (FFE-304)
OUTREMONT (FFE-310)
STRONG (DD-758)
D. H. FOX (DD-779)
PURVIS (DD-709)
GLENNON (DD-840)
BROWNSON (DD-868)
MALOY (DE-791)

TE 81.2.2.5, 6, 7 and 8 Inshore Patrol Elements

J. C. OWENS (DD-776)(F)
ALGONQUIN (DDE-224)
DEALEY (DE-1006)
HAZELWOOD (DD-531)

d. TG 81.9 ASW Carrier Group ONE

RADM F. E. NUSSLE
COMCARDIV FOURTEEN

TU 81.9.1 Carrier Unit

CAPT W. F. BREWER

WASP (CVS-18)
CVSG-52 (20 S2F, 4 AD and 14 HSS)

TU 81.9.2 Screen Unit

CAPT W. J. BARRY
COMDESRON 36

R. A. OWENS (DDE-827)(F)
NEW (DDE-818)
HOLDER (DDE-819)
RICH (DDE-820)
R. L. WILSON (DDE-847)
BASILONE (DDE-824)
DAMATO (DDE-871)

e. TG 83.6 SLAMEX Submarine Attack Group

CAPT J. M. SEYMOUR
COMSUBRON TWO

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NAUTILUS (SSN-571)
BLENNY (SS-324)
TUSK (SS-426)
SAILFISH (SS-572)
TORO (SS-422)
HMS ASTUTE (S-47)

f. TG 83.7 Underway Replenishment Group

CAPT R. P. KLINE

SEVERN (AO-61)

g. TF 302 Halifax Maritime Headquarters

RADM K. L. DYER, RCN
CANCOMARLANT

TG 302.0 ASW Carrier Group TWO

CMDRE M.G. STIRLING, RCN
CANCOMFLT

TU 302.0.1 Carrier Unit

CAPT F. C. FREWER, RCN

BONAVENTURE (RMSM-22)
VS-880 DET (12 CS2F)

TU 302.0.2 Screen Unit

CAPT G. C. EDWARDS, RCN

ATHABASKAN (DDE-219)(F)
IROQUOIS (DDE-217)
HURON (DDE-216)
HAIDA (DDE-215)

h. TG 302.2 Canadian Air ASW Group

RADM K. L. DYER, RCN

TU 302.2.0 MP Air Unit RCAF

CHEF CAPT R.A. GORDON, RCAF
CO, STN GREENWOOD

404 MP Squadron (8 Argus)
405 MP Squadron (8 Argus)

TU 302.2.1 MP Air Unit RCAF

CHEF CAPT A.G. DAGG, RCAF
CO, STN SUMMERSIDE

415 MP Squadron (8 Argus)

TU 302.2.2 VS Air Unit

CAPT T.C. PULLEN, RCN
CO, CNAS SHEARWATER

VS-880 RCN (12 CS2F)

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Chapter II

Section 4

Exercise Setting and Weather

1. General.

Exercise CANUS SLAMEX 1-61 was scheduled during the period 4 through 14 December 1961 and involved the defense of a section of the Canadian-United States east coast against a submarine launched missile attack.

2. Exercise Phases.

The Exercise was divided into four distinct phases as follows:

- a. Phase 1. (Deployment and Warmup) From 041300Z Dec to 062359Z Dec 1961.
- b. Phase 2. (Simple Alert) From 070000Z Dec to 072100Z Dec 1961.
- c. Phase 3. (Reinforced Alert) From 072100Z Dec to the coordinated submarine missile launch at 130252Z Dec 1961.
- d. Phase 4. (General War) From missile attack to FINEX at 131600Z Dec 1961.

3. Exercise Area.

a. The exercise area extended about 500 miles to seaward from the east coast of the United States and Canada from just south of New York City to northeastern Nova Scotia and was bounded by the following points:

<u>LAT</u>	<u>LONG</u>
40-00N	74-05W
32-00N	65-50W
36-25N	55-30W
45-10N	61-30W

b. The extent of the exercise area is portrayed graphically in Figure 17.

4. Exercise Objectives.

Exercise CANUS SLAMEX 1-61 included the following objectives:

- a. Test the capability of ASW forces to defend a section of the Canadian-United States east coast against submarine launched missile

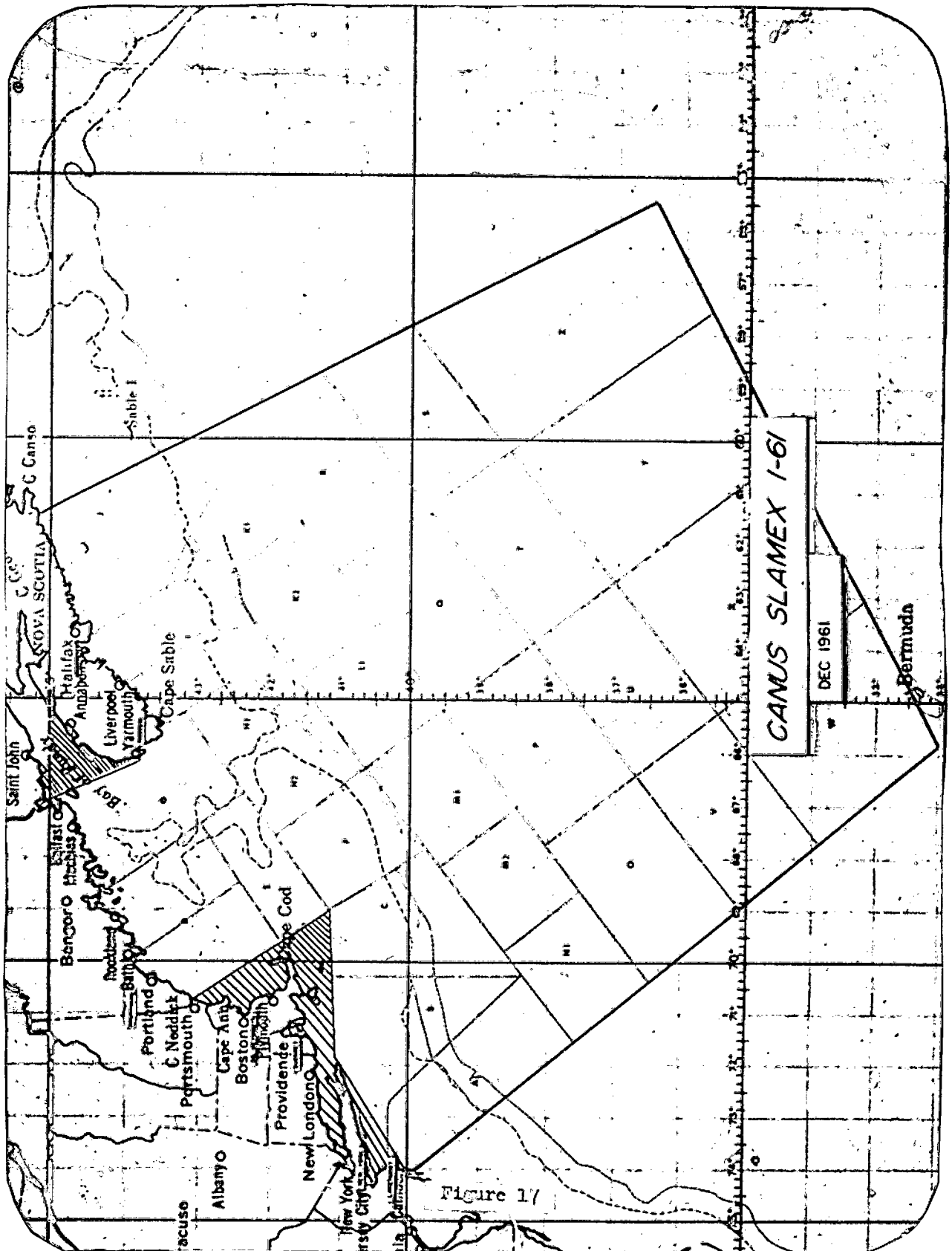


Figure 1/

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attack by:

- (1) Recognizing a submarine threat.
- (2) Preventing missile launches.
- b. Provide maximum training for assigned defensive forces.
- c. Provide training in the United States Canadian coordination of adjacent ASW Control Centers/Maritime Headquarters.
- d. Test tactics, doctrines, and procedures for close-in defense operations.
- e. Provide training for submarines in undetected penetration of defensive forces.
- f. Provide experience for COMASWFORLANT in communicating with and controlling an RCN Antisubmarine Carrier Group.
- g. Provide training and experience in controlling a Surface Patrol Group by shore-based ASW Group Commander/Maritime Headquarters.

5. Weather.

Generally weather conditions as graphically shown on the next page approached the poorer conditions for aircraft rather than optimum. Thunderstorms with accompanying lightning, icing, waterspouts, heavy seas, and gale winds prevailed 7-8 December in the operating areas. Snow, freezing rain, and gale winds were also present throughout 11 December. Coastal fog and rain limited carrier and shore-based VS aircraft during the early part of 13 December. Rain showers prevailed from 9-13 December.

Weather conditions during the exercise are portrayed graphically in Figure 18.

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SECTION 4 FIGURE 18

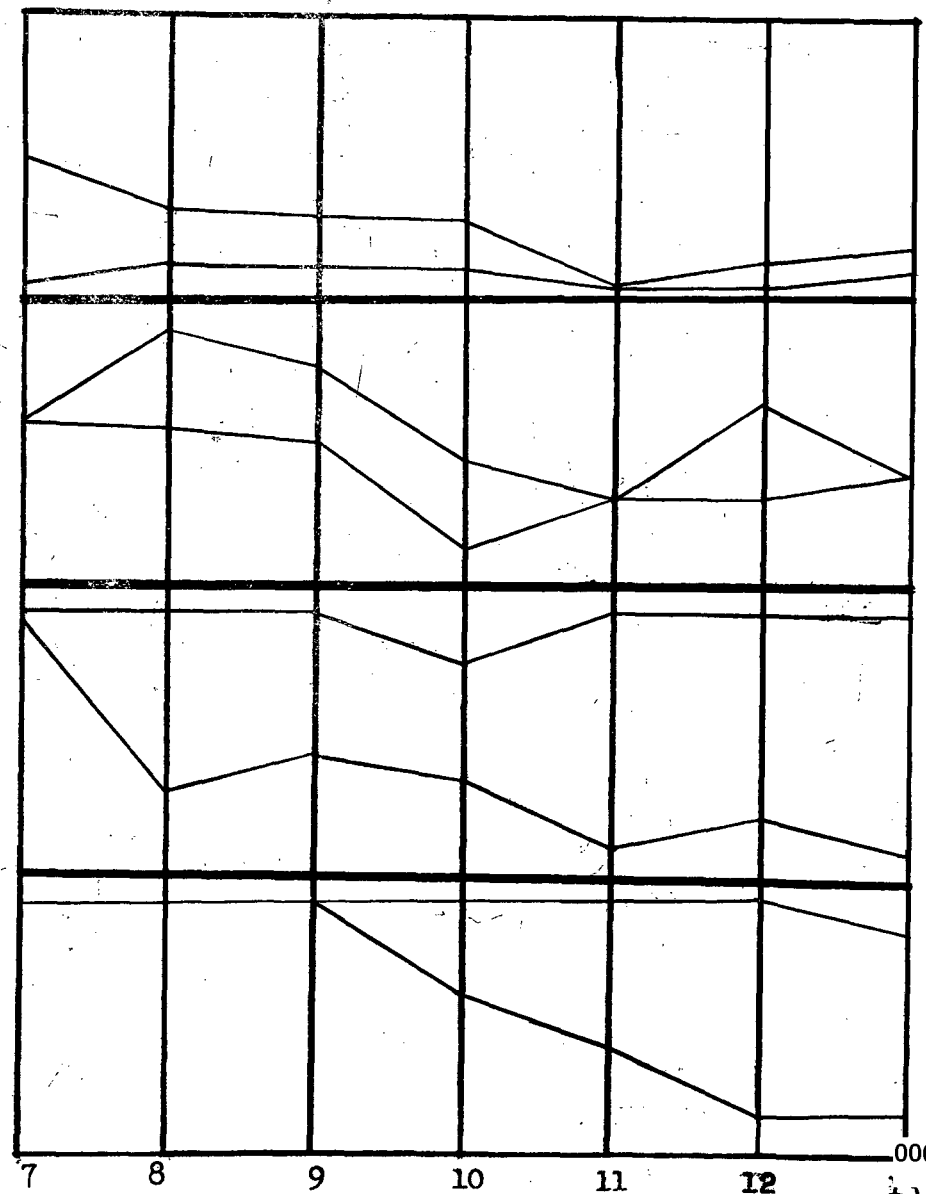
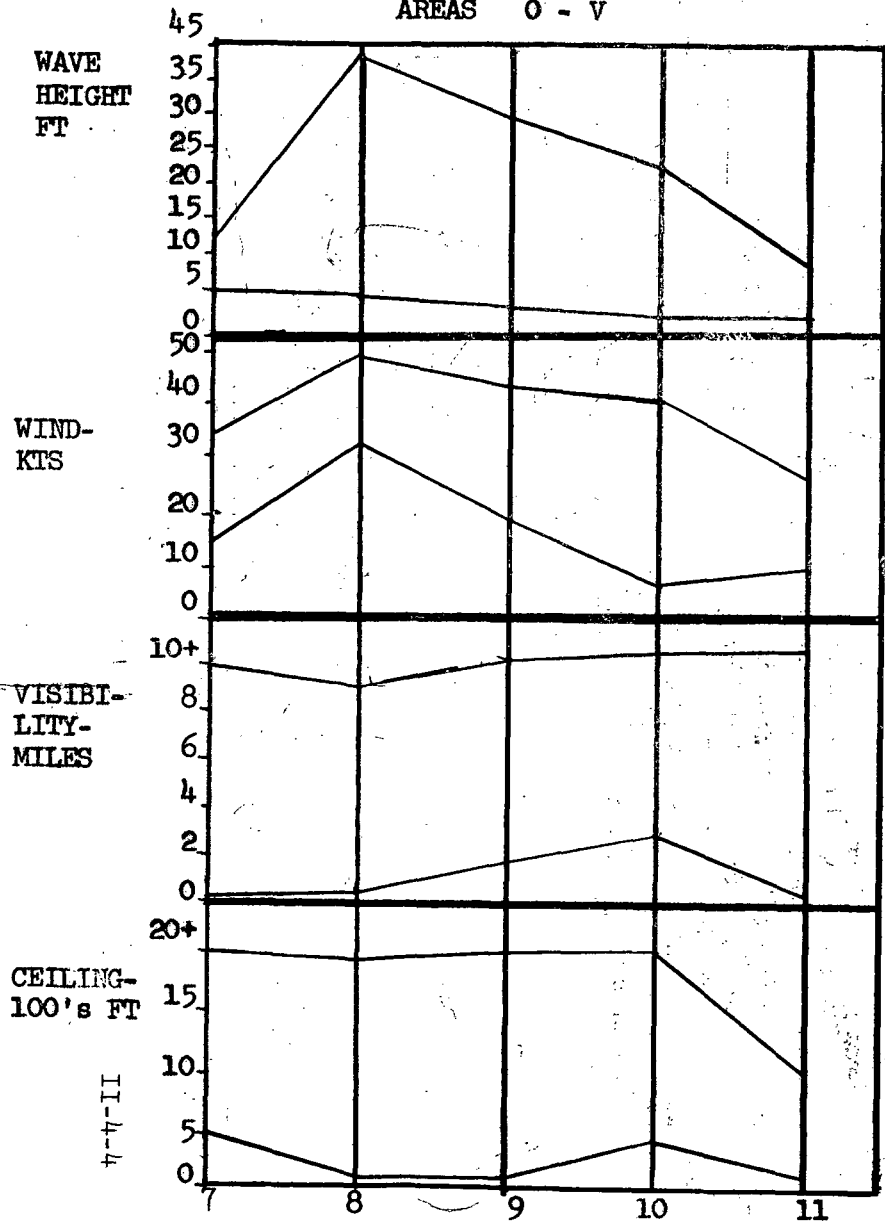
SE HALF

WEATHER SUMMARY

NW HALF

AREAS O - V

AREAS A - N



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Chapter III

Section 1

Contact Analysis

1. During exercise CANUS SLAMEX 1-61, all contacts were designated by the Headquarters, ASWFORLANT acting as CTF 81. This section discusses the validity of these contacts, analyzes contact classification and attack efforts, and includes data on air operations. Designated contacts were numbered K-12 through K-42.

2. Contacts were considered valid when the following criteria were met:

a. A detection opportunity existed at the time and location in question.

b. The available evidence submitted by the opposing force indicated that a detection had been made.

3. The designated contacts, less out-of-action and HOTSHOT contacts were initially detected by the following units: (valid contacts are in parentheses).

	<u>Total</u>	<u>% Valid</u>
VP/MP Aircraft K-18, 22, 28, 29, (33), 35	6 (1)	16
VS Carrier Based None	0	0
VS Shore Based K-14, 27, 30, (36)	4 (1)	25
Destroyers/Frigates K-12, 15, (21), 23, 31, 34, (37), (38), (39), (42)	10 (5)	50
SOSUS K-(13), (16), (17), (19), 20, (24), (25), (26), (32)		

a. The following contacts on out-of-action or HOTSHOT reports were designated but not included in validity computations:

On out-of-action submarine - K-41	1
HOTSHOT message K-40 reports	1

b. A KIL0 summary is presented in Table #1.

5. The sequence of detections with regard to missile launch is as follows:

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Before Launch

K-13 on ASTUTE
K-16 on TUSK
K-17 on TUSK
K-21 on BLENNY
K-24 on SAILFISH
K-25 on TORO
K-26 on BLENNY
K-32 on BLENNY
K-36 on ASTUTE

During Launch

K-37 on TORO
K-39 on BLENNY

After Launch

K-38 on TUSK
K-41 on BLENNY
K-42 on TORO

NOTE: NAUTILUS was detected and attacked by aircraft after HOTSHOT and 2 hours before FINEX but the incident was not designated.

6. Further examining these detections against the major exercise objective of preventing submarine-launched missile attacks reveals:

Submarines detected before missile launch: ASTUTE, TUSK, TORO, BLENNY and SAILFISH.

Submarines not detected before missile launch: NAUTILUS

Submarines attacked before missile launch: BLENNY, TORO, and TUSK

Submarines attacked after missile launch: TUSK, BLENNY, TORO, and NAUTILUS.

Submarines not attacked during exercise: ASTUTE and SAILFISH

Total missile launches planned - 14.

Planned missile launches considered prevented by ASW Forces - 4 (plus 2 possibly prevented.)

% success in preventing missile launch - 43%.

Submarines detected after launch: NAUTILUS, TUSK (previously killed) BLENNY (previously killed) and TORO (previously killed).

Submarines killed after launch: NAUTILUS, BLENNY, TUSK, and TORO.

7. An additional 53 undesignated non-SOSUS contacts have been examined for validity. Six of contacts have been evaluated as valid. The undesignated contacts are tabulated in Table #2 and those considered valid are examined in more detail in Annex B.

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TABLE #1
VP/MP KILO SUMMARY

DETECTIONS

<u>METHOD</u>	<u>TOTAL</u>	<u>VALID</u>	<u>%VALID</u>
Visual	4	0	0
Radar	1	0	0
LOFAR	4	1	25
CODAR	0	0	0
Total	9	1	11

ATTACKS

<u>METHOD BY WHICH ATTACK CONDUCTED</u>	<u>TOTAL</u>	<u>ON VALID</u>	<u>ON INVALID</u>
MAD	0	0	0
JULIE	0	0	0
Visual	3	0	3
Sonobuoy	0	0	0
Total	3	0	3

VS KILO SUMMARY

DETECTIONS

<u>METHOD</u>	<u>TOTAL</u>	<u>VALID</u>	<u>% VALID</u>
Visual	2	0	0
Radar	4	1	25
ECM	0	0	0
Total	6	1	16.6

ATTACKS

<u>METHOD BY WHICH ATTACK CONDUCTED</u>	<u>TOTAL</u>	<u>ON VALID</u>	<u>ON INVALID</u>
MAD	17	10	7
JULIE	0	0	0
Visual	0	0	0
Sonobuoy	0	0	0
Total	17	10	7

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HELICOPTER ATTACKS

<u>METHOD</u>	<u>TOTAL</u>	<u>ON VALID</u>	<u>ON INVALID</u>
Sonar	13	13	0

DD/FFE KILO SUMMARY

<u>METHOD</u>	<u>TOTAL</u>	<u>VALID</u>	<u>% VALID</u>
Sonar	8	4	50
Radar	2	2	100
CODAR	1	0	100
ECM	1	0	0
Total	<u>12</u>	<u>6</u>	<u>50</u>

ATTACKS

<u>METHOD</u>	<u>TOTAL</u>	<u>ON VALID</u>	<u>ON INVALID</u>
Depth Charge	10	2	8
Torpedo	19	12	7
Hedge Hog	9	4	5
Weapon "A"	36	36	0
Gunfire	2 (150 rds ea.)	1 (150 rds)	1 (150 rds)
ATW (MK-10)	14	14	0
Total	<u>90</u>	<u>69</u>	<u>21</u>

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TABLE #2

NON-DESIGNATED CONTACT SUMMARY INITIAL DETECTION
BY VP/MP

<u>Method</u>	<u>Total</u>	<u>Valid</u>
Radar	4	1
Visual	2	0
CODAR	1	1
ECM	*	0
LOFAR	9	2
Total VP/MP	<u>16</u>	<u>4</u>

NOTE: * A great number of ECM contacts were made during the exercise which for the most part were not classified by the aircraft. None of these were valid contacts.

INITIAL DETECTION BY VS

<u>Method</u>	<u>Total</u>	<u>Valid</u>
Radar	5	0
ECM	1*	1
Visual	2	0
Total VS	<u>8</u>	<u>1</u>

NOTE: * A large number of additional ECM contacts were developed by VS aircraft which for the most part were not classified by the aircraft. None of these additional contacts were valid.

INITIAL DETECTION BY DD/FFE

<u>Method</u>	<u>Total</u>	<u>Valid</u>
Radar	2	0
Sonar	20	1
ECM	*	0
Visual	7	0
Total DD/FFE	<u>29</u>	<u>1</u>

NOTE: * In addition, some 30 odd ECM contacts were recorded, none of which were valid.

Grand Total	<u>53</u>	<u>6</u>
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WEAPONS EXPENDED ON NON-DESIGNATED CONTACTS

<u>Method</u>	<u>On Valid</u>	<u>On Non-Valid</u>
Hedge Hog	0	16
DC	4	14
Weapon "A"	0	3
ATW	0	16
Torpedo	6	8

	<u>Attacks</u>	<u>On Valid</u>
VP/MP	15	13
VS	6	0
DD/FTE	16	2
Total	<u>37</u>	<u>15</u>

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Chapter III

Section 1

Annex A

INTRODUCTION: In the following designated exercise contacts (KIL0 12 through KIL0 42), the initial paragraph is the situation as seen during the exercise. The "Analysis Comment" is information explaining the situation as derived from the post-exercise analysis.

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KILO 12

OUTREMONTE - Disappearing Radar Contact and ECM

At 070620Z OUTREMONTE in position 38° 51N 63° 42W obtained a disappearing radar contact bearing 103°, 15.4 miles, with an estimated course of 330° speed 5. The ship altered towards to investigate, but was cold after the initial contact, and at 0623Z altered away to resume patrol. At 070548Z, a distant ECM racket was obtained bearing 102° and suspected of being a possible submarine radar. This was later classified as friendly radar.

Analysis Comment:

This was non-sub. The nearest exercise submarine was NAUTILUS - 150 miles away and at 135 feet.

KILO 13*

*(see also K18 write up. Also, see Pre K-13 write up in Annex B).

- 071444Z Argus N6Q swapped with K4P and received positions of type 504 long life sonobuoys dropped by K4P earlier in the day. N6Q initially continued Jez surveillance based on these sonobuoys.
- 071613 Argus N6Q reports a tug towing freighter noted in immediate area of sonobuoys.
- 071650 Low frequency noise printing on type 504 sonobuoy #11 in position 42-00N 61-32W. Codar plants A, B, C, D, and E dropped by Argus N6Q in this vicinity.
- 071652 ASTUTE reported sighting an aircraft bearing 200° at 6 miles. This was possibly N6Q enroute to Codar plant "A". ASTUTE in position 42-25N 60-50W about 12 miles NNE.
- 071735 Argus N6Q - LRL/1 - enemy report.
- 071741 Datum 41-57N 61-48W established from Argus N6Q CODAR bearings.
- 071756 Argus N6Q - MAD marks.
- 071807 Argus N6Q - MAD marks.
- 071807 Argus N6Q - records cavitation from sonobuoy #3 dropped on 1741 datum. CODAR bearings continued to cross in the datum area.

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- 071813 CTG 81.1 reports SOSUS contact 13-218 evaluated "A" class boat brg 225. Trace began 071721 and ended 071727. Analysis of SOSUS information and ASTUTES movements at that time shows a valid assessment.
- 071815 Argus N6Q - MAD MARK
- 071817 Argus N6Q - MAD MARK
- 071825 Argus N6Q - tracking on MAD which indicated northerly movement. MAD marks held 1756, 1807, 1815 and 1817.
- 071836 Argus N6Q continues to obtain MAD MARKS - 41-57N 61-48W.
- 071840 CTF 81 correlates SOSUS and Argus sightings and assigns KILO No. 13 to contact, classifies as "Probable" and assigns CTG 302 to prosecute.
- 071851-57 Argus N6Q - 2 sets of double Julie echoes at 1851 and 1857.
- 071914 CTF 302 passes Argus N6Q reports (LR 1/1, 1/2 and 1/3) to CTF 81 showing continued MAD on sonar contact.
- 072000 No MAD or Julie contact by Argus N6Q since 1857, aircraft resumes routine surveillance.
- 072205 CTF 81 Sitsum gives position as previous, evaluation probable, and showing contact lost at 072045Z. Source of this time is unknown. (see next entry)
- 072229 CTF 302 reports to CTF 81 that N6Q lost contact at 1900Z (1857).
- 080105 SOSUS reports "A" class Brg starting at 072330Z. Analysis indicates this to be a valid detection.
- 080302 CTF 302 reports to CTF 81 that Argus J9Q/N6Q is on task and attempting to work KL3. (N6Q/J9Q on task 071519-080310)
- 080310 Argus N6Q off task - swapped with HLR.
- 080455 Argus HLR has radar contact 356/22.5.
- 080502 Argus HLR reports sinker subsequent to the 0455 report.

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- 080509 Radar contact. At 0509 Argus HLR on top. Datum 42-30N 62-02W. ASTUTE was in position 42-25N 61-40W or about 18 miles away, shallow with sail exposed.
- 080511 ASTUTE reported sighting aircraft about four miles south of her position (42-25N 61-40W).
- 080700 Argus sinker report of 070502 relayed to CTF 81 by CTF 302 and the fact that the Argus had to leave the contact area in order to reestablish communication with CTF 302.
- 080737 CTF 302 assigned CTG 302.0 to prosecute K13 and indicated datum based on Argus sinker at 42-30N 62-02W. At this time ASTUTE was in position 42-30N 61-55W, only about 4 miles away. CTG 302.0 was also ordered to conduct no Airops in this area until able to assume positive control of the Argus in Area Kilo.
- 080820 Argus HLR has LOFAR and single CODAR bearing in vicinity of 42-35N 61-00W. Aircrew assessed as possible "A" boat, unable to confirm by MAD. LOFAR contact lost at 0845Z but a radar contact 339/10 was held for only two sweeps. DATUM 43-08N 61-20W (this resulted in establishment of K18) see K18 narrative.
- 081129 Argus HLR holds LOFAR from Type 504 Sonobuoy #15 assessed by aircrew as possible "A" boat with an abrupt out at 1145.
- 081345 CTG 302.0 reported to CTF 302 that it still had not established contact with the Argus in Area Kilo and was therefore not yet conducting Air Operations in Area Kilo.
- 081355 HURON and HAIDA dispatched by CTG 302.0 to investigate Kilo 13 (and K18).
- 081609 [REDACTED] Sitrep on Kilo 13 shows [REDACTED] indicated ASTUTE to be [REDACTED] heading westerly at 5 knots. At that time, ASTUTE was about 27 miles east of the stated position, however she had altered course to the Northeast at 081532Z. (SOSUB actually held just two genuine contacts on ASTUTE).
- 081611 Due to inability to contact Argus at datum, CTG 302.0 was still not conducting Airops, in Area Kilo.
- 081730 HAIDA arriving K13 datum commenced square search.

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- 081800 HURON arrived at datum KL3.
- 081820 CTG 302.2 informed that Area Kilo has been clear of Argus aircraft since 1600. CS2F L2D is immediately diverted from her patrol to assist HURON - HAIDA at datum.
- 081838 HURON obtained sonar contact, held for one minute and classified possible.
- 081847 HURON and HAIDA begin Tomato Search.
- 081847 CS2F L2D arrived at datum and reported her position as 42-39N 62-10W. This was within two miles of ASTUTE's DR position at that time.
- 081900 L2D obtained MAD contact.
- 081908 HAIDA - HURON sweep area on loose line of bearing.
- 081909 L2D obtained single Julie echo. ASTUTE reported charges heard at the same time.
- 081912 L2D obtained single Julie echo. ASTUTE reported many charges at this time.
- 081920 ASTUTE at periscope depth reported 2 FFEs (actually they were DDEs) and one Tracker about 5 miles away.
- 081930 L2D left datum for Shearwater due to BONAVENTURE's inability to conduct further Airops in rising seas.
- 081934 ASTUTE went deep to avoid approaching aircraft - probably L2D enroute to Shearwater. ASTUTE also mentioned in her narrative that a ship passed 3000 yards from her during this sequence of events but did not mention time.
- 081950 HAIDA detached to Halifax for fuel. HURON remained at Datum but now without air support. (Some observations - from the narrative of CTG 302.0, there is no indication of receiving word of HURON contact as of the aircraft contact. Neither HURON nor HAIDA's narrative ever mentions the incident other than to state that a square search of Kilo 13 was carried out).

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- 082110 Argus HLF joined HURON and carried out a series of searches as ordered by HURON. Both remained in vicinity of K13 until 090215Z at which time HURON was ordered to return to the general vicinity of BONAVENTURE.
- 091429 IROQUOIS ordered to investigate general area of K13. Recalled to BONAVENTURE at 1745Z. ASTUTE at this time 30 miles West.
- 091929 Argus J9D had radar contact 104/06.
- 092002 BONAVENTURE recommended Airops. CS2Fs patrolling West part of Kilo paying particular attention to K13 and K18 datums.
- 092005 Argus J9D reported POSSIBLE SINKER 43-17N 61-04W, 091946.
- 100754 CTF 302 Sitrep to CTF 81 reported HURON, HAIDA, and ATHABASKAN with VS aircraft after 2000Z, searching general area of K13.
- 101635 CTG 81.1 Sitsum indicated no recent contact held on K13 but now established to be in general area of Gulf of Maine.
- 110019 HURON has Sonar contact.
- 110028 HURON confirmed contact as submarine.
Comment - HURON's narrative gave no position for this contact. Position recorded by CTG 302.0 as 025RJ31 (43-22N 61-46W). To confuse the issue however the General Operations Plot kept by CTG 302.0 shows the contact plotted at 43-25N 61-12W at 110124Z, a distance of about 25 miles. At the time of this action ASTUTE (the nearest sub) showed her posit as 43-57N 61-50W - some 30 odd miles to the North. The only HE reported by ASTUTE at this time was assessed visually as correlating with a ship burning no lights to the South of her.
- 110035 HURON attacked.
- 110043 HURON established Datum Echo.
- 110100 CS2F A3L arrived on task to assist HURON. Commenced 3000 yard MAD trap about datum at 0110Z.
- 110120 CS2F A3L gained MAD contact on sono position 43-24N 61-42W. Two attacks conducted based on possible MAD. ASTUTE at PD reported nothing relative to these attacks.

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- 110123 CS2F/A3L lost MAD contact.
- 110133 CS2F/A3L regained MAD contact and estimated submarine traveling South-West.
- 110139 ASTUTE reported snorkeling and charging.
- 110143 CS2F/A3L - MAD contact.
- 110233 CS2F/A3L continued MAD after departure of HURON from area. From appreciation of submarine movement, datum was re-established some 11 miles on a bearing of 240° from original. One Maypole laid and MAD trapping resumed around it. Contact regained and attack made.
- 110235 ASTUTE dived and reported three charges heard faintly on sonar thus indicating that scene of action was well removed from her position.
- 110235 CS2F/A3L dropped sonobuoy on another MAD contact. Cavitation and new turn count of 220 RPM.
- 110250 A3L more MAD marks. Cavitation getting louder.
- 110253 MAD mark and attack.
- 110255 Turn count decreased to 160 RPM.
- 110257 More MAD marks.
- 110300 More MAD marks.
- 110312 A3L relieved on task by ALQ who remained at datum without gaining further contact.
- 110345 HURON and IROQUOIS resumed search of datum.
- 110345 IROQUOIS and one CS2F remained until 111102.
- 112022 CTG 81 closed contact K13 and K18.

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COMMENT ON K13

The SOSUS contacts reported at 071813Z and 080105Z are assessed as genuine and correlated in all respects. The Argus N6Q LOFAR contact reported at 071650Z is assessed as possibly genuine "ASTUTE". The 071836 MAD datum and 071851 and 1857 JULIE contacts gained by N6Q are not easily correlated with ASTUTE (42-26N 61-04W DR based on DECCA), some 45 miles from the 1836 MAD datum 41-57N 61-48W (LORAN), or 1857 JULIE datum 42-00N 61-52W. The "Sinker" reported by Argus HLR at 080455Z corresponds quite closely with the DR position of ASTUTE at that time. Further, ASTUTE states she sighted an aircraft visually at 080511Z. It is particularly unfortunate that the aircraft had to leave the datum for about two hours in order to re-establish contact with CTF 302. The Argus HLR 080820 Lofar and Radar contacts are assessed as possibly genuine "ASTUTE" in view of the reasonable position correlation and the fact that ASTUTE was snorkeling at the time. It is also unfortunate that CTG 302.0, assigned to prosecute K-13, was unable to establish contact with Argus J9Q on the datum. The timely arrival of further air and surface support units might well have altered the rather unsatisfactory history of this contact. The action beginning with HURON's sonar contact at 081837Z appears promising at first glance. The positions for the sonar contact and the subsequent CS2F MAD and JULIE contacts agree closely with ASTUTE's DR position. It is also obvious from ASTUTE's narrative that the ships and aircraft were in her area at this time, but at no time was their attention centered on the actual position of ASTUTE. This fact together with the rather nebulous nature of the information gathered from the three contact methods indicates that the contact was non-sub. It is interesting to note that one of the DDEs passed within 3000 yards of ASTUTE who observed most of the activity through her periscope. Once again, however, it appears to have been an occasion when perseverance might have produced dividends; but HURON remained alone in the general area and an hour and a half elapsed before an Argus joined to replace the CS2F which diverted to SHEARWATER. A BT several hours later by HURON indicated that sonar range was only 1200 yards and this may explain the inability to acquire a good contact.

The 1929Z sinker 43-17N 61-04W reported by Argus J9D at 092005Z is some 30 miles from ASTUTE's position at that time. ASTUTE was snorting at the time but did not report either visual or ECM contact. The contact is therefore assessed non-sub. The sonar contact reported by HURON at 110019Z is difficult to assess despite her classification of positive ASTUTE. The nearest submarine, was some 30 miles to the south at this time. However, it is difficult to discount both HURON's positive classification and the series of contacts made by the aircraft A3L. The turn count correlates with apparent datum movement for the period contact was held. The position of this action is about 120 miles North of the point where Argus N6Q held MAD and JULIE contact.

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In summary, K13 was a very protracted sequence in which it appears that further perseverance might have resulted in the demise of ASTUTE.

ANALYSIS SUMMARY K-13

071650 Argus N6Q LOFAR - Probably genuine ASTUTE.

071813 81.1 eval 13218 as A Class and established a segmented LOB.

080105 81.1 eval 13222 as A Class and established an M~~S~~ SKP at 081609.

080455 Argus HLR SINKER - Probably genuine ASTUTE.

080820 Argus HLR LOFAR-CODAR - Possibly genuine ASTUTE.

092005 Argus J9D SINKER - Non-sub. since [unclear].

KILO 14

At 071445Z, Lakehurst S2F, M9N reported a spook, probable surfaced submarine, in position 39°50N 73°08W and turned to investigate. This was later identified as the Tanker "ESSO JAMESTOWN", but it had already been reported and designated.

Analysis Comment:

Non-sub.

KILO 15

CHAUDIERE in position 39°59N 61°52W gained sonar contact at 071636Z and classified as a possible submarine, but three minutes later classified the contact as non-sub. COMASWFORANT's Black 205 of 080147Z closed the incident due to insufficient evidence.

Analysis Comment:

Non-sub.

The nearest exercise submarine was TUSK - 57 miles away at 150 feet.

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KILO 16

CTF 81 080021Z [REDACTED] course Northwest
with an unknown SOA.

At 081207Z CAP DE LA MADELEINE, CHAUDIERE and Argus F9Z were ordered to search the northern area of the SPA, and BROWNSON and Argus N7Q to search Southern area.

At 081225Z Argus N7Q reported a mast and a possible sail at 6 miles position 39-31N 61-18W and evaluated positive submarine. The Argus carried out 1 D/C attack. This was followed by a single MAD mark, single JULIE echo, and possible crank shaft lines on LOFAR.

At 1225Z TUSK at 150 feet in position 39-45N 61-46W, reported hearing distant PDCs, commenced snorkeling at 1303Z, and recorded further PDCs continuing until 1349Z, when an Argus was sighted heading north at 6,000 feet. TUSK ceased snorkeling at 081411Z. From this report it would appear that the Argus did not hold TUSK, even allowing for the navigational discrepancy.

At 081312Z Argus F9U swapped with N7Q and reported sea states of 8 to 9, winds up to 50 knots, water spouts and lighting. Due to this state of weather and equipment difficulties, Argus F9U was unable to locate the JULIE pattern, and continued on to Area TANGO, advising MHQ.

At 081615Z Argus F9Z joined CAP DE LA MADELEINE and was ordered on a "1 MIKE" at the request of BROWNSON; at 1715Z PURVIS and ST CROIX were ordered to join BROWNSON and Argus F9U.

At 081845Z during area search, CAP DE LA MADELEINE gained sonar contact in position 39-50N 61-43W, but this was classified non-sub. Datum was established in this position at 1900Z in accordance with CTF 81's Black 204.

TUSK was deep and 25 miles away from this datum.

At 1940 CHAUDIERE joined, and at 082122Z CTG 81.2 ordered BROWNSON to rendezvous with CHAUDIERE and CAP DE LA MADELEINE.

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By COMASWFORLANT's Black 215 of 090445Z, KIL0 16 was closed, evaluated to be the same contact as KIL0 17.

Analysis Comment:

This was a good SOSUS posit estimate even though it was quite large due to the small bearing drift on a single station contact.

Other contacts in this KIL0 were non-sub.

KIL0 17

A green flare was reported by CAP DE LA MADELEINE at 102347Z and a datum established at 42-18N 63-34W. Sonar contacts were obtained and a sono barrier laid by Argus. The surface units carried out several attacks without acknowledgement. LA HULLOISE, reported 2 yellow flares at 110927Z and the A/S action was broken off as it was believed that a submarine intended to surface. HAZELWOOD reported contact on UQC with TRIGGERFISH, hull #425. No submarine surfaced, and the area was then searched with no success.

(Analysis comment - Due to a series of misunderstandings, a non-existent submarine, the TRIGGERFISH, with TRUMPETFISH's hull number, was prosecuted. The 2 flares sighted were grenades exploding just below the surface, the visibility greatly reduced due to snow storms. It appears that false information was passed on the UQC. The submarine TRIGGER was in Charleston, and TRUMPETFISH in Guantanamo, and the only "FISH" submarine in the exercise, SAILFISH, was 220 miles away. The closest exercise submarine was TUSK whose position as shown in the remaining narrative was never less than 40 miles away).

While this incident was taking place, CHAUDIERE at 110112Z gained sonar contact, evaluated as possible submarine. Six attacks by simulated LIMBO, and one torpedo attack were made while contact was held for 79 minutes. After CHAUDIERE's first attack, UQC communication was attempted twice but no acknowledgement was received.

TUSK detected sonar echo ranging and light fast screws with a turn count of 180 and heard a transmission on UQC "Unknown submarine, this is 16 (CHAUDIERE), I have simulated two ringer attacks and one bloodhound, consider successful." Later, TUSK heard this transmission twice more.

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Under prevailing sound conditions, TUSK estimated the contact did not close within 8000-10,000 yards, and was attacking a school of shrimp.

On the 11th, SOSUS reported a 110805Z SEP on TUSK which was part of K-17.

Analysis Comment:

Despite TUSK's estimate of range of CHAUDIERE's attacks to be in excess of 8000 yards, the umpire rules are quite specific in requiring the submarine to come to periscope depth to measure the range if she does not feel the attacks are close enough to cast the die, and further require her to declare herself out of action without die cast after the third attack if the range is not measured to be in excess of 5000 yards for a torpedo attack. Because of TUSK's undoubted sincerity in estimating the range in excess of 8000 yards, however, CHAUDIERE's contact cannot be positively assessed and must be evaluated only as possibly genuine. Her two missile launches are counted as only "possibly prevented."

To recap the SOSUS data, KILOs 16, 17 and 19 were all genuine on TUSK. At 071541Z an MBSPA was established and evaluated as an FM10. This was a valid SOSUS position estimate even though quite large due to small bearing drift on a single station's contacts. The SPA at 072321Z contained TUSK which was 19 miles from the RSD and TUSK was on the border of the 090345Z SPA. The SPAs at 091310Z and 100453Z also contained TUSK.

For the maneuvering board SEP at 102110Z with radius of 12 miles, the submarine was at the center of the circle of reliability.

The last SEP of KILO 17 at 110805Z, radius of 10 miles, was made up of targets from stations Ramey, Shelburne, Bermuda North, Barbados and Eleuthera. This SEP was a revision to two previous SOSUS estimates of TUSK's position at 110805Z; but the two previous estimates were greatly in error even though three of the four targets forming them were valid. For this last SEP, TUSK was only 4 miles away from the SEP.

The SOSUS targets in KILO 19 correlate with KILO 17 and the SEP passed was within 11 miles of TUSK.

KILO 18

KILO 18 was developed during the prosecution of K-13 and was designated by Red 206 as the result of Argus HLR (405MP) sinker and LOFAR at 080845Z

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at 43-08N 61-20W. HURON and HAIDA were ordered to investigate contacts KIL0 18 and 13. No further contacts were made and K-18 was closed by Black 218 at 091351Z. Based on Argus J9D (415) sinker at 091929Z, 43°17N 61°04W, KIL0 18 was re-opened at 100559Z by Black 224. At 110019Z HURON reported sonar contact and one VS MAD contact and made 2 H/H attacks which were evaluated successful but not acknowledged. Attack posit was 43°40N 61°40W. VS MAD mark was 199°, 2900 yards from HURON evaluated as non-submarine. Search was continued without further contact and K-18 was closed by Black 236 at 112022Z.

Analysis Comment:

K-18 was a non-sub contact developed by HLR in his prosecution of K-13. J9Ds sinker at 091929Z which re-opened KIL0 18 was not ASTUTE 30 miles away and still being prosecuted as KIL0 13. The other contacts reported by HURON and VS MAD are also non-sub. (See report of KIL0 13).

KIL0 19

[REDACTED]

and a two-sub co-ordinated transit was suggested. This contact was passed to CTE 81.2.2.0 in HMCS COLUMBIA at 090747Z and investigated by Argus aircraft until 091351Z at which time K-19 was closed by Black 218 which re-evaluated this contact to be the same as KIL0 17.

Analysis Comment:

The SOSUS targets which generated K-19 did in fact correlate with KIL0 17 and furnished an SEP within 11 miles of TUSK.

KIL0 20

[REDACTED]

VP-21 P2V (G4C) reported possible LOFAR in position 39°42N 07°40W at 092205Z. VP-21 P2V (B9C) reported LOFAR in position 39°37N 68°21W at 100010Z. SOSUS target 15244 was also associated with K-20. KIL0 20 was closed by Black 226 at 101030Z. Final evaluation insufficient evidence.

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Analysis Comment:

None of the LOFAR contacts or SOSUS targets indicated above correlated with exercise submarines.

KILO 21

BASILONE in position 37°30N, 68°30W while stationed astern of USS WASP as Lifeguard, acquired a sonar contact at 092027Z at a range of 4800 yards. R.A. OWENS joined BASILONE and also gained contact on sonar. Aircraft of VS-28 and HS-11 joined the action and gained contact with MAD and sonar respectively. During the course of the action the incredible number of 60 attacks was made, 15 by BASILONE, 29 by R.A. OWENS, 3 by VS aircraft and 13 by HS aircraft. Practically all of them were evaluated successful; however the submarine BLENNY, did not surface out-of-action until 2245Z.

Analysis Comment:

The narration of this action speaks for itself and there is little to be added other than it appears to have been a very well conducted AS action. The good sonar ranges prevailing undoubtedly simplified matters. Had similar ranges been possible further to the north, the outcome of the K-13 story might well have been different. In view of the persistent and continuous nature of the attacks it seems that BLENNY was somewhat tardy in casting the die prior to accepting her out-of-action status. The result is that both R.A. OWENS and BASILONE expended practically all their simulated ammunition load and would have been of limited use had they been involved in any subsequent action; but the ASW action was probably the most effective training period during the exercise.

KILO 22

KILO 22 was designated by Red 211 at 100101Z as the result of Argus HLM/H6M report of sinker at 092245Z, position 41°02N, 66°05W. At 100009Z Argus HLM/H6M reported a SLAMEYE in vicinity of 41°08N, 65°43W. No further contacts occurred and KIL0 22 was closed by COMASWFORLANF by Black 226 at 101030Z.

Analysis Comment:

Non-Submarine.

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KILO 23

At 100030Z while in position 38°15N, 67°33W in company with HMCS NEW WATERFORD, GLENNON gained sonar contact 220°/6700, evaluated possible submarine, tracking on a westerly course at 5 knots. Having overtaken the contact with a good attack lead, GLENNON simulated firing a port search MK 32 torpedo at 100045Z, target angle 040 with range of 400 yards. The attack signal was passed over UQC but no acknowledgement received. The attack appeared to be successful as it was launched in the area of highest probability. After the first attack, for the first few minutes, contact was maintained, with GLENNON maneuvering to keep the contact on the beam.

GLENNON turned for a second attack at 100100Z but lost contact, and then located a sinker, 180°/400 on the port beam. The second attack was at 100106Z and simulated MK 9 depth charges were fired. Again no acknowledgement on UQC. GLENNON on turning to pass through datum regained contact at 270°, 1700 yards on the starboard beam, the ship, believing that the contact would attempt to head to the east to avoid attack, attempted to pass the contact through the forward baffles and hold contact off the port bow while heading Northeast. After the turn, the ship was unable to regain contact. The next attack was at 100114Z with the simulated firing of a starboard search MK 32 torpedo, anticipating that the contact may have attempted to go astern; the estimated range on firing was 300 yards. Upon turning to port after the attack, sonar contact was regained 500 yards south of datum, but this was later evaluated as own knuckle. A close search was conducted around the datum, but contact was not regained until 100223Z when it was regained bearing 299°, 6030 yards. It was lost four minutes later after evaluating it as a possible submarine. It appeared that the submarine went deep. At 100330Z, PADLOC gained passive contact and the ship became fully passive, whereupon PADLOC lost contact. For the next 90 minutes, the ship unsuccessfully attempted to regain contact. The sonar conditions were good with the layer at 200 feet with only a one-degree differential with a very slight positive gradient (62°-63°).

Analysis Comment:

These contacts were non-sub. The nearest exercise submarine was BLENNY, 55 miles away bearing 235°.

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KILO 24

COMASWFORLANT's Red 213 of 101610Z designated a SEP centered at 39°15N, 66°30W, radius 60 miles, time 101500Z, as K-24. ()

At 101621Z, BROWNSON and MALOY were ordered to proceed to 39°15N, 66°00W. At 1752Z, P2V B9X reported to have reached the assigned area and commenced search. At 1950Z BROWNSON reported that 2 DDs were on the scene, plus 1 VP, carrying out an area search, and that the weather was suitable for air operations. BROWNSON recommended discontinuing the investigation, and was proceeding to 40°16N, 66°25W with MALOY and STRONG to rendezvous with NEW WATERFORD. At 110540Z, P2V B9X in Purple 222 reported he had been under advisory control of MALOY while investigating KILO 24 and the aircraft maintained a 2-buoy JEZEEL barrier but from 102043Z to 102300Z, obtained no submarine contacts. At 110550Z STRONG assumed control of BROWNSON, MALOY, GLENNON, and NEW WATERFORD in radial search around 40°N 66°25W. At 111751Z NEW WATERFORD had a possible LOFAR contact and at 1813Z in position 39°50N, 66°22W, the contact was evaluated as a possible GM 16 within a 15 mile radius. At 1817 the LOFAR faded. During this time SAILFISH was at 400 feet about 5 miles away. KILO 24 was closed by COMASWFORLANT's Black 235 of 112022Z.

Analysis Comment:

() The submarine was within 41 miles of the center of the SEP. The NEW WATERFORD LOFAR contact looked very promising, but since the submarine was quiet at 400 feet, the contact was non-sub.

KILO 25

This KILO developed () on an FM-10, position 39°30N, 72°35W, with a radius of 60 miles. At 101915Z the VP aircraft ordered to investigate discontinued area search due to weather. At 101934Z, J.C. OWENS reported she had eight fishing vessels in immediate area with visibility of 7 miles. She had 2 ECM contacts and 3 spooks but not having any air coverage, was only able to investigate one ECM contact to edge of exercise area. At 101935Z, () was added to KILO 25 but no SEP was established. J.C. OWENS reported at 110530Z that the incident was closed due to insufficient evidence. However, the incident was re-opened at 110543Z when OWENS reported radar contact and intermittent ECM, and RICH proceeded to the contact. The radar contact became a sinker at 0548Z in position 39°48N, 73°04W. At 111221Z J.C. OWENS reported the incident closed due to insufficient evidence. In purple 222, New York S2F N6N reported that at 111515Z a positive snort was sighted in position 39°47N, 72°40W, course 240, speed 5, for about 1 minute. The S2F

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received Joy on his sonobuoy with mechanical noises and screw noise. However, due to low fuel state, the aircraft had to leave the contact. TORO, the closest exercise submarine was at 150 feet, 19 miles to the south. This incident was closed due to insufficient evidence at 120210Z.

Analysis Comment:

Target 17342 was non-sub. However 17343 was added and this was a genuine line of bearing on TORO. All other contacts reported were non-sub. TORO was deep at the time of the radar and ECM contacts and was not cavitating at the time of the sonobuoy contacts.

KILO 26

A SEP at 111243Z with 20 mile radius from 39°N, 69°W was designated K-26. BLENNY was snorkeling from 111220Z until 111236Z at which time she surfaced and remained surfaced until 111320Z. 111356Z-SEP 20 mile radius 39N 69W. Designated K-26 classified possible. 111534-CTG 81.9 assigned to investigate K-26.

111631Z-S2F (I4D) reported disappearing radar contact at 39°21N, 68°44W, 25 miles Northeast of center K-26. CTG 81.9 assigned R.A. OWENS and HOLDER to investigate. 111630Z-I4D (S2F) was on top and commenced JULIE localization (39°25N, 69°05W) (position plots to the south of BLENNY's position about 20 miles). BLENNY reports hearing distant PDCs at this time. At 111915Z, R.A. OWENS and HOLDER reported sonar contact and made two attacks each.

During the next six hours VS and HS assigned to 81.9 were not intermittently on JULIE, MAD, and SONAR. Incident closed 120102Z due to insufficient evidence.

Analysis Comment:

The SEP was genuine and the 20 mile circle of reliability did contain BLENNY 5 miles from the center.

Other contacts were non-sub.

KILO 27

CS2F M3D acquired a sinker followed by cavitation on Maypoles, position 44°22N, 61°16W at 111144Z. The contact was tracked by

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cavitation until 1330Z at which time an approaching surface contact swamped the pattern. Four MAD marks were obtained which resulted in two MK 43 attacks being launched at 1250Z. No acknowledgement was received.

Analysis Comment:

Non-sub. At this time, ASTUTE was the closest submarine some 55 miles distant and snorkeling.

KILO 28

Argus H5F at 111610Z had intermittent ECM contact on 8920 MCS from an unknown source, in position 41°56N, 67°10W. The rackets ceased at 1633Z. At 111627Z a radar sinker was reported confirming the ECM fix, which was established as datum at 1635Z. Two torpedo attacks, each of two torpedoes, were carried out at 1635Z and 1642Z and were claimed successful by the aircraft. No noise received on buoys dropped on datum. The attacks were not acknowledged. At 112004Z, OUTREMONT was ordered to proceed to position 42°N, 67°W to assist Argus H5F in prosecuting the contact. COMASWFORLANT's Black 250 of 130805Z closed KILO 28.

Analysis Comment:

This is non-sub. TUSK from 111505Z to 1545 was snorting in position 42°43N, 65°06W and not operating radar. From 1600Z to 1700Z TUSK was deep. TUSK did not report any PDCs or attack signals. The NAUTILUS, at 111630Z was at 150 feet in position 42°15N, 66°30W and at 1645Z was at 60 feet, with no radar on.

KILO 29

HMCS NEW WATERFORD LOFAR/CODAR

In prosecution of KILO 24. CTU 81.2.2 at 110524Z directed USS STRONG and HMCS NEW WATERFORD to operate within 15 nautical miles of 40°N, 66°25W. HMCS NEW WATERFORD reported three (3) CODAR plants within 7 miles of (079 X D37) 40°07N, 66°12W. At 110830Z, based on latest intelligence this force was dispatched to 40°N, 65°47W (090 X B 10) arriving at 111045Z. At 111445Z, HMCS NEW WATERFORD reported possible CODAR localization at 39°46N, 66°02W (190 XB 14). Again at 111813Z, NEW WATERFORD detected possible LOFAR (FM-10) at 39°50N, 66°22W (240 XB 19). This contact faded at 111817Z. One P2V aircraft (VP-21) was contacted for assistance. By 112054Z, aircraft sonobuoy patterns had been laid. At 111955Z the aircraft

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had indications of one (1) US FM 10 within 10 miles of 40°02N, 66°37W (275 XB 29). All units were cold at 112149Z. COMASWFORLANT designated this contact as KILO 29 at 112240Z (Red 219 Dec) with an evaluation of NOT US OR KNOWN FRIENDLY. Based on debrief and jezgram analysis, KILO 29 was closed at 112334Z (Black 238 Dec).

Analysis:

Analysis indicates that SAILFISH was approximately 5 nautical miles from the 111513Z LOFAR posit. However, during the periods of LOFAR/CODAR detection, the SAILFISH was deep. Post exercise Gram Analysis by CFAWL indicated non-sub. This KILO is assessed as non-sub.

KILO 30

S2F M3C VS S. WEYMOUTH

: At 120457Z a shorebased S2F (M3C) out of NAS, South Weymouth detected a small radar contact position 42-24N, 69-04W. On run in for identification, the target disappeared at 4 miles. MAD contacts were obtained at 120501Z. Attacks were conducted at 120505Z and 120509Z on subsequent MAD contacts. Three sonobuoys were planted at 120529Z, 0541Z and 0600Z. Two (2) sonobuoys produced what appeared to be cavitations, indicating a submerged speed of 10-15 knots. From arriving at DATUM until relieved, the locating aircraft obtained a total of seventeen (17) MAD contacts.

At 120625Z, M3C was joined by an assisting S2F (M3H) out of NAS, South Weymouth. This aircraft gained additional MAD contacts and delivered three (3) attacks (120710Z, 0715Z and 0718Z).

At 120739Z, M3C was relieved by S2F (M3E). M3H was recalled to base and departed the contact area at 120805Z. While on station, M3E obtained numerous MAD contacts and planted two (2) sonobuoys without results. The pilots evaluation was sunken ship.

This contact was closed by COMASWFORLANT Black 250 Dec dtg 130805Z.

Analysis: During the period of this contact, the closest exercise submarine was USS NAUTILUS 63 miles Brg 035 (T). Correlation with NAUTILUS report indicates that this contact was not an exercise submarine and probably was sunken vessel.

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KILO 31

P2V SINKER, GLENNON's SONAR CONTACT

At 112112Z P2V B4E reported a radar contact at 40-13N 67-07W. Target became sinker at 19 miles, oil slick sighted at datum and buoy dropped on slick. From 112132Z to 112216Z, six JULIE echoes and 1 JULIE fix obtained. From 112218Z to 112223Z four MAD contacts gained. At 112219Z B4E attacked with conventional weapons, attack not acknowledged. Contact lost at 112233Z.

At 120410Z GLENNON (DD-840) gained sonar contact evaluated at the time as possible. This contact was only 18 miles from B4Es earlier contact. This position was 40-37N, 66-43W. Contact was held intermittently until finally lost at 121049Z. During the time contact was held, GLENNON (DD-840) made five attacks none of which were acknowledged. 1 attack was made from a P2V of VP-10 which also was not acknowledged. The classification was probable and contact was designated K-31. The contact was closed out by COMASWFORLANT 130247Z with final evaluation as non-sub.

P2V AND GLENNON SONAR CONTACT AND SINKERS (SHIP REPORT)

"At 120410Z, sonar contact was obtained in position 40-39N, 66-46W bearing 045° 8,600 yards. After consideration, this was evaluated as bottom return. The contact was tracked for the next 30 minutes before the contact was re-evaluated as a possible submarine. At 120500Z the contact returned an echo unmistakably characteristic of a submarine. The ship turned to attack on a course of 150°. At 120530Z, the ship came to center bearing and put the contact in the baffles to close the range. At 0538Z, contact was regained intermittently which enabled the simulated firing at 0544Z of a starboard search MK 32 torpedo at a range of approximately 600 yards, with the submarine turning to port showing a port bow aspect. The attack signal was transmitted repeatedly during this and the subsequent attacks, but no acknowledgement received."

"The GLENNON continued to track the submarine and to maneuver into position for another attack. At 0615Z, the contact turned inside GLENNON, and hid in the wake at 0619Z resulting in loss of contact for 21 minutes. Contact was regained at 0640Z for 10 minutes when once again contact was lost."

"PADLOC detected a contact at 0743Z bearing 300°, and at 0745Z sonar gained contact on the same bearing at 5,000 yards and held contact for 5 minutes. The ship conducted a close-search without success around datum."

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"At 0959Z, contact was gained 3,500 yards off the port bow, and on closing to attack, contact was lost at 1003Z but a simulated MK 9 depth charge was fired at 1005Z."

"It appeared from the chart and fathometer that the contact had been discovered while hovering over a "valley" in the bottom. It was anticipated that the submarine was attempting to return to the same spot, since his last heading was toward this position."

"At 1017Z contact was gained for 2 minutes but lost until 1031Z when it was discovered close aboard to starboard. An "over-the-shoulder" attack with a simulated starboard search torpedo was carried out and as the GLENNON turned to port to re-attack, contact was still maintained even though the contact had tried to turn back into GLENNON's wake. However, at 1049Z contact was lost."

"When contact was regained at 1109Z, the contact displayed some very elusive tactics, employing false target cans and tight maneuvers while on a generally easterly heading."

"At 1115Z the submarine was just off the forward part of the bow baffles; it had turned to port to appear to turn north, then released a false target can, and made a turn to starboard still moving slowly after its turn. The GLENNON turned to port and passed the contact through the baffles and crossed ahead of his track. The contact attempted to turn to port inside GLENNON's turn, but course was adjusted to keep the bearing constant. At 1121Z, a simulated starboard search MK 32 torpedo was fired at 375 yards, and a simulated hedgehog pattern was fired at 1122Z. An accompanying P2V of VP-10 was vectored into attack shortly afterwards and a simulated starboard search torpedo was launched at 1123Z."

"Upon turning for re-attack, sonar lost contact at 1125Z in GLENNON's wake. The contact was last tracked on a westerly heading. The P2V planted two sonobuoys about 4 miles West, the BROWNSON patrolled 5 miles north and GLENNON and 2 aircraft searched to the east and south attempting to "box" in the contact. Contact was never regained even after a lengthy search. GLENNON suspected that the submarine sought shallow water and hid on or near the bottom."

"The sonar conditions were good for relatively shallow water. The water temperature was 69° with an isothermal layer down to 250 feet."

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Analysis Comments:

Non-sub.. Nearest submarine was ETHAN ALLEN which was about 23 miles away bearing 230, and the nearest exercise submarine was 46 miles 135° at periscope depth.

KILO 32

KILO 32 was designated [REDACTED] EC 001, and an SEP was generated at 39°31N, 69°07W as of 120700Z. A second SEP was generated 8 hours later. At 130015Z, ALGONQUIN gained sonar contact with a target believed to be resting on the bottom at 40°32N, 69°49W and attacked with ATW. Attack was not acknowledged. KILO 32 was closed at 130306Z by Black 247 and re-designated KILO 39.

Analysis Comment:

KILO 32 was a [REDACTED] contact on BLENNY. The radius of first SEP was 25 miles (BLENNY was at 28 miles) and second SEP was 30 miles radius with BLENNY at 16 miles. ALGONQUIN's contact was evaluated a wreck. BLENNY was later acquired by RESTIGOUCHE and successfully attacked under KILO 39. BLENNY's hotshot in KILO 39 was located in almost precisely the center of the circle of reliability of this second SEP.

KILO 33

KILO 33 was designated by Red 223 at 121226Z as the result of a 121021Z LOFAR contact plus CODAR bearings by Argus 14Q in position 42°29N, 66°41W at 121105Z. At 121422Z Argus 14A reported sinker in position 43°32N, 67°29W. At 1536, Argus 14W reported LOFAR at 42°31N, 65°49W. KILO 33 was investigated by CHAUDIERE, HAZELWOOD, and NEW WATERFORD with Argus aircraft until 122116Z at which time 2 ATW attacks were made by CHAUDIERE on a sonar contact in position 42°45N, 65°48W. KILO 33 was closed by Black 250 at 130805Z.

Analysis Comment:

Argus 14Ws 121536Z LOFAR is assessed as a possibly genuine contact on TUSK who was snorkeling within 30 miles. None of the other contacts mentioned above are considered genuine. MAD reported in Red 223 should have been CODAR.

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KILO 34

J.C. OWENS SONAR CONTACT

At 121840Z in position 39-41N, 72-38W, J.C. OWENS gained sonar contact at 1,200 yards and classified as possible submarine. This contact was some 10 miles east of the Texas Tower buoy sitting on the 40 fathom ledge. Attacks were carried out at 1847Z with 1 D/C, 1852Z 1 H/H, 1858Z 1 H/H, 1905Z 1 H/H, 1 D/C, and one bloodhound, 1912Z 1 D/C, 1917Z 1 D/C, 2012, 1 D/C, 2042Z, 1 H/H and 1 D/C, and 2052Z, 1 bloodhound. During the engagement, contact was steady, and the results were not known.

TORO, during the engagement was sitting on the bottom 140°, 500 yards from the Texas Tower buoy throughout the engagement and clearly heard all UQC transmissions by the J.C. OWENS. Later when the ship and the TORO had a conversation on UQC, TORO reported that the ship had been blasting a wreck which is known to submarines but not shown on the destroyers charts.

Analysis Comment:

Non-sub. A wreck.

KILO 35

ARGUS ECM, MAD, SWIRL AND CODAR

At 122253Z, Argus M9B obtained ECM bearing 295°, frequency 8706 mcs in position 4205N, 66-02W and again at 2303Z bearing 315°. From this time until 130010Z, CODAR was obtained. 5 MAD contacts were obtained from 130002Z until 0115Z, in position 42-08N, 66-48W. At 0108Z, a swirl was sighted and was attacked three times.

At 130044Z the BLENNON and BROWNSON were ordered to join the ARGUS in prosecuting the MAD contacts. The ships arrived in the area and commenced area search with a VS-935 aircraft. Numerous small craft were in the area and these prevented the use of sonobuoys.

Analysis Comments:

This was non-sub.

The nearest exercise submarine was TUSK at 65 miles.

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KILO 36

CS2F SINKER

CS2F L9J gained a sinker at 122147Z in position 44-17N, 61-52W. Analysis of this contact, as with K-27, is complicated by non-receipt of the aircraft records. From the Purple rendered for the sortie, the aircraft apparently dropped a sono pattern at datum and had cavitation on three of them for a period of 40 minutes although they were unable to establish track or speed. The aircraft suspected a distant surface contact and eventually evaluated it as non-sub. In the meantime, the initial contact was designated K-36 by CTF 81 and evaluated as possible exercise submarine. Apparently the aircraft classification of non-sub was never received by CTF 81. At sinker time, ASTUTE was only 8 miles from the stated position (well within limits of navigational accuracy) and at periscope depth operating below cavitation speed. ASTUTE's narrative makes no mention of sighting an aircraft at this time but of course the CS2F was darkened. The sinker therefore is evaluated as possibly genuine ASTUTE while the cavitation is ruled invalid. Hotshot reports from ASTUTE resulted in the generation of KILO 40. However, this was subsequently re-designated as part of K-36. No further information was forthcoming on this contact and it was closed at FINEX.

KILO 37

J.C. OWENS RADAR CONTACTS SUNK BY GUNFIRE, AND SONAR CONTACT

At 122249Z, the J.C. OWENS was 4,000 yards north of the Texas Tower wreck in anticipation of a submarine closing the buoy for a navigation fix prior to the missile launching. Two spooks appeared almost simultaneously, the first 11 miles northeast of J.C. OWENS and the second immediately adjacent to the Texas Tower Buoy 4,000 yards south of OWENS. OWENS engaged the target adjacent to the buoy with gunfire as soon as it appeared at 122225Z. As soon as OWENS simulated opening fire, attempts were made to advise the target that he was under fire, on circuit C-24 AC, but without success. OWENS closed the closer target to about 3,000 yards but visibility was zero due to fog. Fire was ceased some seven to ten minutes later. OWENS moved to the northeast to close the second spook which was closing the buoy at nine knots. It was assumed, and so reported to CTG 81.2, that the first spook had been sunk. As OWENS moved to close the spook in the east, the one near the buoy got underway and cleared the buoy on a southeasterly heading. At 122325Z the easterly spook was taken under simulated gunfire

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at 18,000 yards and simulated sunk. The spook close to the buoy became a sinker to the south. OWENS gained sonar contact on this target at about 7,000 yards and commenced an ASW action against the submarine. The first attack was at 2315Z with a spread of Mark 15 torpedoes, another with hedgehog and D/Cs, the third with H/H and D/C, and the last attack with D/C at 130008Z. The easterly contact continued to close and broke into the clear at about 1500 yards, and was identified as a small trawler. TORO reported to the OWENS that she surfaced at 122249 $\frac{1}{2}$ Z to simulate HOTSHOTS at 2256Z and 2258Z.

Analysis Comment:

TORO was sunk by gunfire prior to HOTSHOT, and sunk again during the subsequent ASW actions. The trawler also was sunk. The gunfire tactics paid dividends and were most effective, though rather unfortunate for the trawler!

KILO 38

ST CROIX SONAR CONTACT, ASSISTED BY HAZELWOOD

In consequence of intelligence of a HOTSHOT, the ST CROIX, while on patrol in position 43-05N, 66-40W, gained sonar contact at 130528Z bearing 225, 2,000 yards. This contact classified as a possible submarine. Course was altered to 220 to investigate. The contact was estimated to be tracking 240, speed 8, and was intermittent. LIMBO was simulated at 0552, 0552 $\frac{1}{2}$ and 0553Z when contact lost -- it was regained at 0554 at 135, 1,100 yards and LIMBO simulated at 0557 and 0557 $\frac{1}{2}$ Z. Contact was again lost at 0558Z until 0603Z when it was regained at 045, 1,500 yards. At 0608Z, the contact was classified non-submarine. However, HAZELWOOD which had joined at 0552Z, obtained sonar contact at 0633Z, 1,400 yards from her and at 0639Z, attacked the contact with D/C. Again it was classified non-submarine, but then ST CROIX gained sonar contact 278, 2,200 yards, and reclassified the contact as possible submarine. It was estimated that the contact was tracking west at low speed. At 0634Z, ST CROIX simulated LIMBO and then one minute later, lost contact, and at 0719Z contact was finally lost.

ESR was 1,200 yards with a layer depth at 150 feet.

Analysis Comment:

This contact was possibly genuine on TUSK, but the attacks are not considered successful; nevertheless, since TUSK did not come up to measure the range after hearing the attack signals, she was automatically out-of-action by the umpire rules after three attacks.

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KILO 39

KILO 39: At 122236Z, RESTIGOUCHE picked up a radar contact at 4.6 miles. One minute later the bridge reported sighting a green light, a possible SIAMEYE, and as the contact faded, the ship altered course towards the sinker at 15 knots. Sonar contact was gained and the ship proceeded to attack. At 2302Z, the submarine, BLENNY, fired but this attack was unsuccessful by roll of the die. At 2303Z, RESTIGOUCHE carried out her first attack simulating LIMBO and this attack was judged unsuccessful by the roll of the die. At 2304Z, a green flare was sighted at the same time as RESTIGOUCHE's second simulated LIMBO attack. RESTIGOUCHE evaluated her second attack as successful, and reported that BLENNY failed to roll the die for this second attack. An impasse threatened to develop on out-of-action status, but a gentleman's agreement was reached whereby if RESTIGOUCHE maintained contact on BLENNY for 3 hours, the submarine would be out-of-action. RESTIGOUCHE held contact for the agreed period and at 130237Z, BLENNY surfaced out-of-action. RESTIGOUCHE reported this, and in paragraph 2 of her message asked "next please."

Analysis Comment:

A valid kill by RESTIGOUCHE but also a valid attack by BLENNY first. The sighting of the green flare at 2237Z was in fact BLENNY's second HOTSHOT fired at that time.

KILO 40

This contact was designated based on ASTUTE's HOTSHOT reports at 122239Z and 122241Z.

COMASWFORLANT closed KILO 40 and stated that it was the same as KILO 36.

Analysis Comment:

No contact on KILO 40 was made other than the HOTSHOT reports originated by ASTUTE.

KILO 41

At 131112Z, RESTIGOUCHE picked up a radar contact at 9.1 miles near the spot where BLENNY was placed OA at 130237Z. This had been

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a stationary target and was now showing movement to the northwest. The contact faded and RESTIGOUCHE turned to investigate. She had received a message at 1015Z, re-activating BLENNY. At 1130Z, ECM was held by RESTIGOUCHE momentarily. At 1136Z, sonar contact was gained. At 1140Z, a green flare was sighted at approximately 2000 yards as the submarine BLENNY made three attacks on RESTIGOUCHE. The first two attacks were unsuccessful by roll of the die, but the third attack was successful at a range of about 1500 yards, and at 1145Z, RESTIGOUCHE reported herself out-of-action. BLENNY had avenged herself. RESTIGOUCHE remained out-of-action until 1430Z, within 5 miles of her torpedoed position with all her sonar silent.

At 131348Z, COLUMBIA gained sonar contact and closed for a mortar attack. At 1358Z, she saw a green flare, and BLENNY informed her that she was out-of-action; and this proved to be correct by the roll of the die, but COLUMBIA continued to hold contact. She did not care to lose a chance for ASW action.

Quonset S2F H2L sighted BLENNY's flare for attack on COLUMBIA, and at 1402 obtained MAD mark. One minute later, the S2F simulated dropping LIMU. She had MAD marks until 1420Z, and during this period made two further attacks with MK 43 torpedoes. While this was going on, STRONG obtained a sonar contact some distance away while in waiting station astern of the SEVERN, and carried out two urgent attacks with hedgehog and with D/C. The STRONG ordered three S2F MADVECS. A Quonset S2F reported he had MAD contact for 16 minutes. This S2F simulated two MK 43 torpedo attacks, and claimed that the submarine acknowledged with yellow flare and surfaced. (However, from the S2F records, no PDC's were dropped, and the submarine could not have heard his attacks. During the S2F attacks, BLENNY was attacking COLUMBIA, and was not aware of the presence or the attacks by S2Fs).

RESTIGOUCHE was re-activated at 1430Z and ordered to join COLUMBIA investigating her sonar contact, but at 1443, COLUMBIA was put out-of-action again by the BLENNY with three torpedoes, and by roll of the die. RESTIGOUCHE gained sonar contact and attacked BLENNY for 9½ minutes with 6 simulated LIMBO attacks and 2 MK 43 torpedoes. BLENNY acknowledged these attacks by RESTIGOUCHE, and surfaced out-of-action at 1505Z.

Analysis Comments:

A real free-for-all with acknowledged kills by BLENNY and RESTIGOUCHE - both the submarine and surface ship were effective in their attacks.

As STRONG's attacks were made when BLENNY was at periscope depth, the

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Attacks were not on BLENNY, and the STRONG and S2F MADVECS are assessed non-sub, except that the MAD obtained by S2F H2L after sighting the flare signalling BLENNY attack on COLUMBIA is assessed as genuine. The cooperation between STRONG and the S2Fs appears to have been excellent.

KILO 42

KILO 42 developed when TORO made attacks on J.C. OWENS at 131302Z and 131306Z as OWENS and RICH were in company, steaming on a narrow weave some 5 miles apart. OWENS declared herself out-of-action at 131310Z, and RICH, gained sonar contact at 131320Z. In the ensuing action, TORO got off two attacks on RICH at 1322Z and 1326Z while RICH made three attacks on TORO at 1322Z, 1325Z and 1341Z. In the words of TORO's C.O. "unfortunately the dice were against us", and RICH was credited with a kill. TORO reported the launching of two nuclear attacks on her, one at 1335Z and another at 1420Z as she was coming to the surface. S2F K9N working with the surface forces, launched bloodhounds at 1340Z, 1342Z and 1420Z, the pilot intending to signal the launching of MK 43 torpedoes.

Analysis Comment:

This was a valid kill by RICH on TORO, but valid attacks were also made by TORO and the S2F (even though TORO later reported she was out-of-action at the time of the S2F attack).

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Buoy #7 type SSQ-28 41-58N, 59-14W launched at 070328Z.

Buoy #9 type 504 (xxx) 42-42N, 60-35W launched at 070910Z.

Buoy #10 type 504 (319) 42-22.5N, 61-00W launched at 070915Z.

Buoy #15 type 504 (251) 42-42N, 61-39W launched at 070842Z.

SIGNIFICANT SUBMARINE DISPOSITION

ASTUTE

070315-070435 - in approximate position 42-27N, 59-44W - 42-29N, 59-52W, snorting and using radar 2 sweeps every 6 minutes.

070435 - ASTUTE holds a racket-getting stronger-stopped snorting racket then weaker.

070555-070615 - ASTUTE records HE-classified possible turbine.

070500-070630 - in approximate position 42-30N, 60-00W - deep at 110.

070922-070950 - in approximate position 42-27N, 60-10W - snorting.

071015-071126 - in approximate position 42-33N, 60-20W - snorting.

071130-071450 - in approximate position 42-29N, 60-34W - deep 110'.

Comment:

The 070328 LOFAR could have quite possibly been ASTUTE snorting. She was within 40 NM of buoy #7. The 070920-070950 and 071010-071120 LOFAR could have originated with ASTUTE snorting at the time of both of these contacts. The times of ASTUTE's snorting cycles, 0922-0950 and 1015-1126 approximate the times of signature data on the aircraft gram. Position comparison between ASTUTE and the intercepting sonobuoys indicate the possibility of the sound source being ASTUTE. The 1317 contact 42-42N 61-39W is close to ASTUTE but she was deep 110' at 42-29N, 60-34W. The FAIRWINGSLANT analysis of the aircraft's 071035-50 LOFARGRAM assessed possible U.S. Sub. The Station Greenwood LOFAR analysis indicates the 1010-1120 LOFAR - possible "A" boat.

Analysis Summary:

070328 LOFAR: Possibly genuine - ASTUTE

070920-50 LOFAR: Possibly genuine - ASTUTE

071010-1120 LOFAR: Possibly genuine - ASTUTE

(See K-13 narrative for continuation of above action)

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Chapter III Section I Annex B

UNDESIGNATED CONTACTS

PRE KILO 13 CONTACTS

- 070328 2 LOFAR lines gained immediately on dropping sonobuoy #7, were held until 0405 and again from 070540-070600. Crew assessed as possible "A" boat, but later considered non-sub.
- 070920 LOFAR displayed 0920-0950 from sonobuoy type 504#-10 was assessed blade possible merchant (42-22N, 61-00W).
- 071010 LOFAR displayed 1010-1120 from sonobuoy type 504#-10 was assessed blade-possible merchant.
- 071059 A single LOFAR line (at 104 cycles) from sonobuoy #15 type 504 assessed by crew as possible FM 10.
- 071313 A single LOFAR line from sonobuoy #9 type 504 - was assessed by crew as possible FM 10 or GMV 16. This line faded at 1317 and patrol was resumed after an unsuccessful visual search of the area.

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INCIDENT - Sonar contact was gained by DEALEY at 131416Z, and a VP-661 P2V, then under positive control of DEALEY, was vectored out. It had two radar sinkers enroute and made MAD contact at 1430. Four successive MAD contacts were made while the aircraft was alternately in a 4000 yard MAD trap and cloverleaf. No joy was received on the 3 buoys laid on these contacts and no weapon drop was reported by the P2V. DEALEY classified the target as non-sub and abandoned the contact, taking up a heading of 150° to follow the contacts suspected course. At 1454 NAUTILUS approaching from the southeast, sighted DEALEY bearing 310° at 15,000 yards, after just previously recording sonar contact. An aircraft was reported five miles ahead at 1458 by NAUTILUS.

At 1524 a second P2V B5Y of VP-21 which had just been vectored to the scene by DEALEY reported sighting a green flare, which signaled an attack by NAUTILUS simulating 6 MK 16 torpedoes on the DE, crs 148 speed 13 range 2900 (actual course 150, speed 12). Then NAUTILUS fired a second green flare, simulating 4 MK 16 torpedoes at target course 040 speed 13 (actual course 040 speed 13) range 2500 yards.

At 1531, this flare was sighted by the P2V and a simulated Bloodhound attack was made at 1534. DEALEY gained sonar contact at 1531, sighted the second flare, also sighted a periscope 800 yards off the port bow, and simulated a MK 44 torpedo attack concurrent with NAUTILUS second attack. (By post exercise analysis, DEALEY was out-of-action by this attack).

Four successive simulated bloodhound attack were made by the P2V until 1550 on sonar vectors, confirmed by MAD (and NAUTILUS was out-of-action by post exercise analysis). DEALEY also vectored P2V G6C on 3 timed sonar vectors between 1542 and 1556. Each was a simulated Bloodhound attack, all signaled by 2 PDC drops by both aircraft.

At 1556, DEALEY vectored a third P2V to the scene (VP-21 B5X) and 2 more simulated bloodhound attacks were made on sonar vectors, confirmed by aircraft MAD. "Casket" could not be delivered due to the proximity of DEALEY to the target.

NAUTILUS acknowledged DEALEY's MK 44 attack at 1538 and stated it was unsuccessful but did not acknowledge the second MK 44 attack nor any of the aircraft attacks. Her log however contains numerous entries of single underwater explosions. At 1601 the contact opened on DEALEY while the DE was making 22 knots giving her the first indication of a nuclear opponent. At 1601 the P2V B5Y made a simulated bloodhound attack and at

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1606 P2V G6C made a final attack with the last 2 PDCs both on a sonar vector.
At 1615 P2V B5Y made a final bloodhound attack on sonar vector confirmed
by MAD.

FINEX was received at 1620 and the aircraft, having expended their
ordnance, departed for home plate.

Analysis Comment:

NAUTILUS completed two successful attacks on DEALEY before being detected
by DEALEY; and DEALEY is, therefore, considered out-of-action before any
counterattacks were made. Subsequent attacks on a fully evasive nuclear
submarine using aircraft on MADVECs appeared excellent, however, and
would have been considered successful if she, herself had not been ruled
OA. The P2V attacks following NAUTILUS' second green flare are considered
successful despite the non-receipt of a double-charge signal.

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CHAPTER III

SECTION 2

SUBMARINE TRANSIT TACTICS

1. The primary submarine mission was to penetrate an ASW defensive area and simulate the execution of a coordinated simultaneous and surprise simulated submarine missile attack against assigned military and industrial complex targets of the Continental Northeastern United States and Eastern Canada between 070001Z and 130001Z December 1961; and secondarily, upon completion of the missile attack, seek out, attack and simulate the destruction of all encountered United States and Canadian naval surface forces. Two of the seven submarines (six actual, one constructive) of their forces carried short range, inertially guided, 200 mile missiles. Each of these submarines was armed with two missiles. The other two submarines (SAILFISH and the constructive submarine RUOMYES simulated SSBNs), each carried four long range inertially guided, 500 mile missiles. One of the actual submarines NAUTILUS, was nuclear but simulated a non-nuclear SSB. The prescribed missile launch time for all submarines less SAILFISH was 122230Z. Prescribed launch time for SAILFISH and RUOMYES was 122215Z.

2. The northern half of the exercise area was divided into seven patrol zones which were to be used by submarines for the anti-shipping phase of the exercise following launches. See Figure 19 for a pictorial diagram of how the prescribed submarine tracks and patrol areas were designated. A twelve mile buffer zone was established between each area designated for transit and/or patrol. Once a submarine had entered her assigned patrol zone she was not to leave it until FINEX. Actual submarine tracks, as well as launch positions, are shown in Figure 20.

3. Launch positions, launch times and general tracks to be followed during the transit were specified; however, each submarine commanding officer was given complete freedom in the planning of his individual transit policy. Intelligence was available indicating that enemy air and surface forces would be encountered but that no submarine opposition would be met.

4. The individual transit policies, deviations from these policies, number and type of detections made by submarines and known detections on submarines are listed below. Statistics of individual transits are included in Table I.

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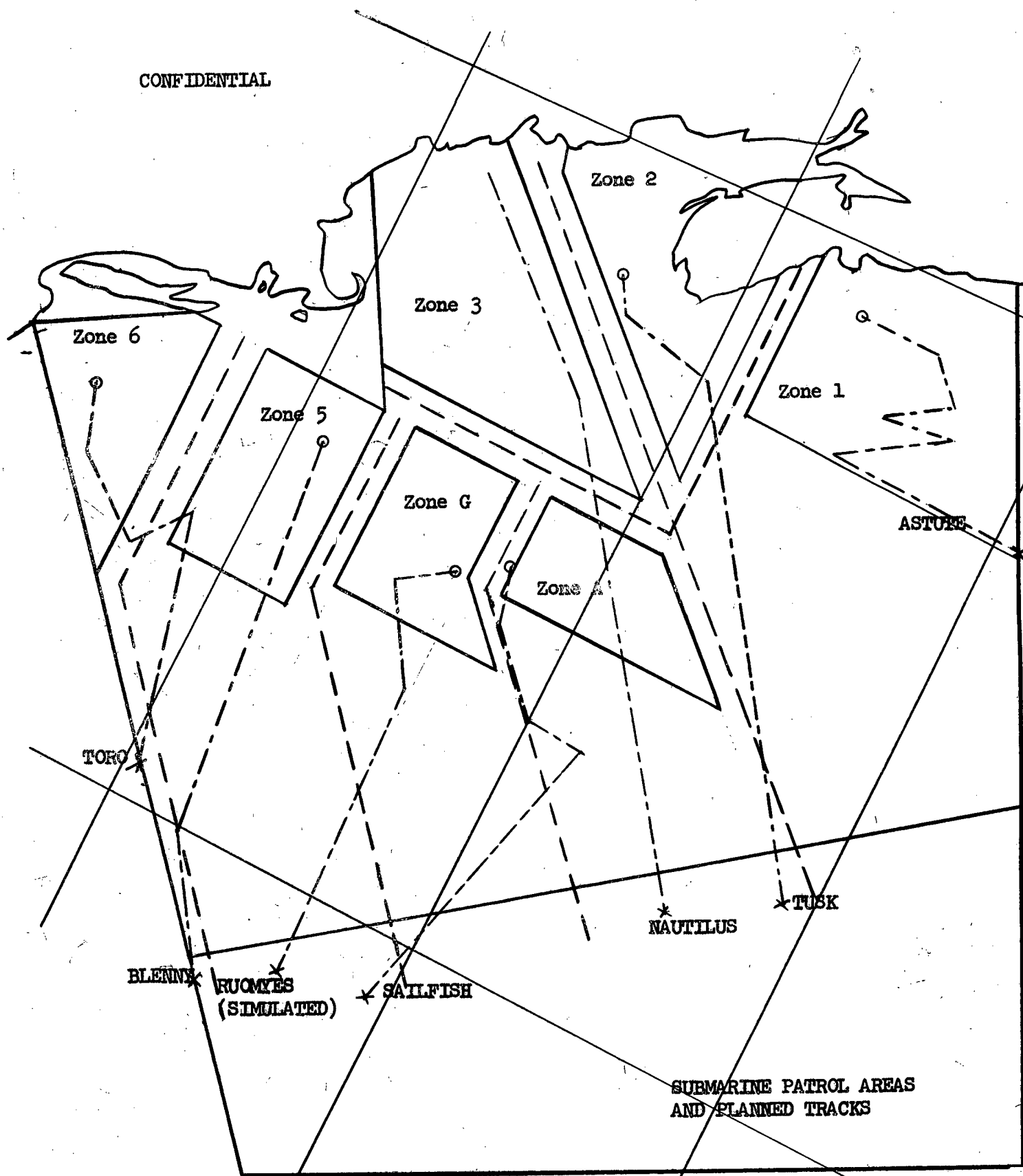
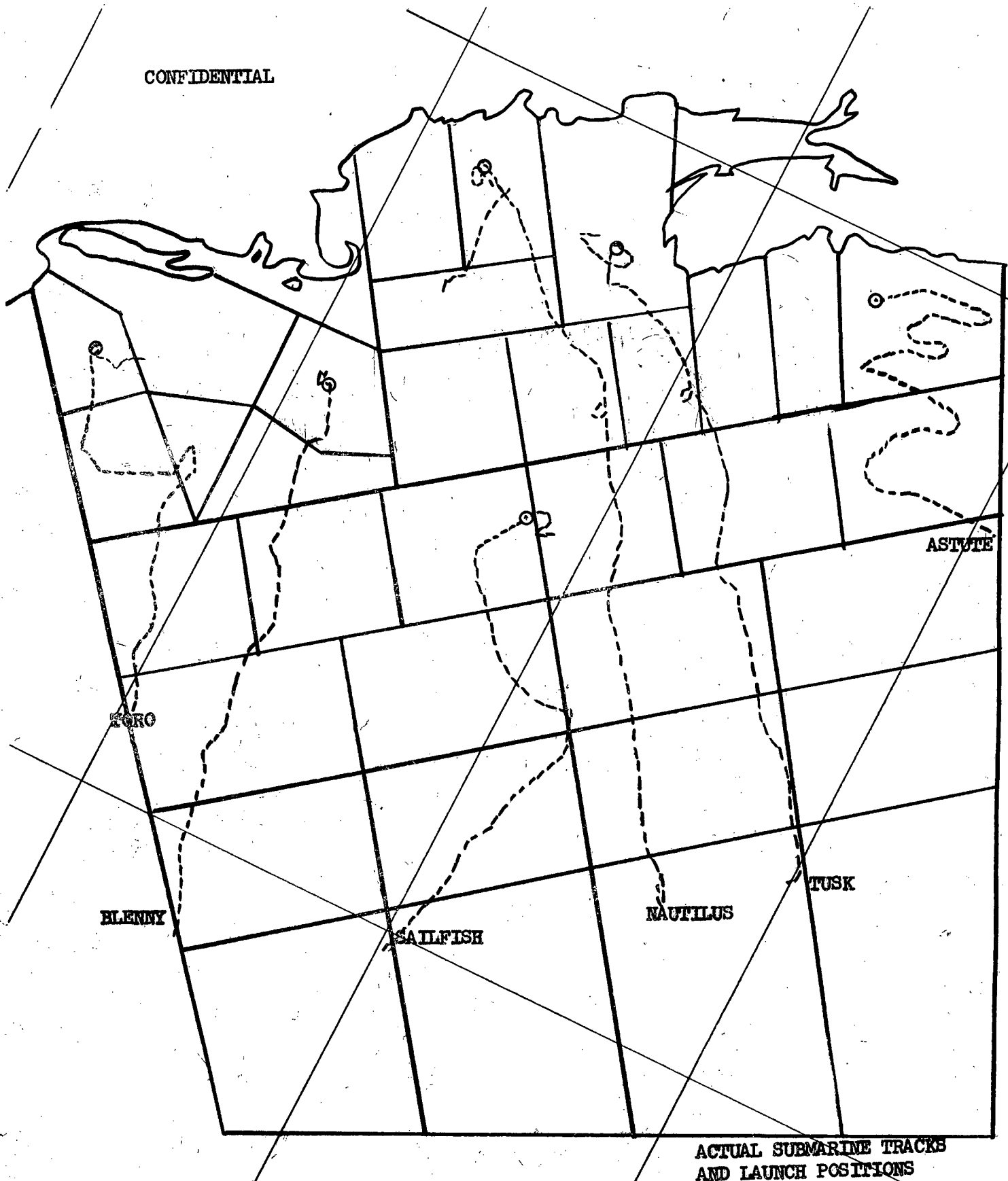


Fig. 19

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ACTUAL SUBMARINE TRACKS
AND LAUNCH POSITIONS

Fig. 20

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TABLE #1

	<u>TORO</u>	<u>TUSK</u>	<u>BLenny</u>	<u>NAUTILUS</u>	<u>SAILFISH</u>	<u>ASTUTE</u>
Required SOA	2.6	3.0	3.1	3.9	2.9	2.6
COMEX Battery Cap.	65	82	68	NA	93	97
Launch Battery Cap.	65	39	70	NA	15	50
Planned Min. Cap.	50	50	50	NA	50	50
Actual Min. Cap.	50	34	54	NA	10	40
SOA Less OA time	2.64	3.24	3.33	5.75	2.68	3.06

USS NAUTILUS

1. Policy.

NAUTILUS was required to make a relatively low SOA of 3.9 knots. In- as much as this speed would not seriously tax her capabilities it was decided to remain in the general vicinity of her initial point for about two days, before starting her transit. This would require an SOA of 10 knots between radio broadcasts and would reduce necessary exposure time of various masts while in closer to land and in the area of greater detection probability.

No evasive steering was planned except as necessary to avoid detection. The minimum time necessary to copy broadcasts was to be spent at periscope depth. Normal running depth outside the 100 fathom curve was to be 250 feet and 150 feet in less than 100 fathoms. These depths were based on the desire to reach a safe median between a shallow depth, where detection by aircraft or surface units was probable,

These depths would be modified slightly if layer depth conditions made it desirable. Continuous ECM employment at periscope depth was planned. Radio transmissions would be made only in an emergency.

2. Transit.

The transit to the launch point was made as planned with two exceptions. Due to heavy weather and increasing difficulty in copying the U.S. broadcast near the initial position, the transit was commenced 10 hours earlier than originally desired. It also became necessary to send one message

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requesting repetition of a U.S. number missed due to atmospheric conditions. Neither of these deviations affected the transit as NAUTILUS made a successful launch and was apparently undetected until her attack on DEALEY.

At 131522Z and 131530Z, NAUTILUS made an undetected approach and two good attacks on DEALEY. Upon completion of the second attack NAUTILUS was then taken under attack by DEALEY and three P2V aircraft. The analysis of this encounter was that NAUTILUS placed DEALEY out-of-action and that the aircraft then placed NAUTILUS out-of-action. The successful attacks by aircraft were made on an excellent datum provided by the two flares fired by NAUTILUS.

During the transit, and up to the time of attack on DEALEY, NAUTILUS reported the following detections:

a. Aircraft-Visual

ASW	3
Commercial	0
Unclassified	0

b. Shipping-sonar

Warship	4
Merchant	22
Unclassified	6

c. Shipping-visual

Warship	1
Merchant	0
Unclassified	1

d. ECM contacts

Aircraft	21
Surface ships	0

During the exercise the following genuine detections were made on NAUTILUS:

- a. Aircraft - None (However, NAUTILUS flares simulating attacks on DEALEY were sighted)
- b. Surface Ships - None
- c. SOSUS - None

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USS TORO

1. Policy.

TORO transit plans were basically the same as other conventional submarines with a few modifications to allow for the fact that she was not equipped with a snorkel. SOA required was 2.6 knots. She intended to run on the surface for an hour around sunset to enable her to get evening stars. Maximum use was to be made of all four main engines and the auxiliary to make best speed and charge air and batteries at the maximum rates. It was further planned to surface periodically for about one hour duration throughout the night and to remain deep and run slowly during daylight hours. Exceptions would be made to insure full coverage of the U.S. broadcast. Complete electronic silence was to be maintained except that single ping soundings would be taken very judiciously after reaching the Continental shelf. Attempts would be made while at periscope depth to glean radio intercept intelligence from the ASW forces.

2. Transit.

The transit was conducted as planned for the first two days, however, it became apparent that a wiser plan would be to conduct surface operations during daylight hours. This policy was adopted and from 091500Z through FINEX all charging was conducted between sunrise and sunset. This decision was based on the theory that chances of detection would be reduced if TORO could see her opposition and thus provide her with an opportunity to detect the ASW forces, especially aircraft, visually instead of placing excessive reliance on ECM.

Antenna failure became a problem and it was necessary to maintain a periscope depth of 52 feet in lieu of the more desirable 60 feet when copying the U.S. broadcast and using ECM capabilities. Battery capacity was not as much of a problem as had been anticipated for at no time during the exercise did the battery capacity fall below 50%.

During the period 081050Z -081600Z, TORO was forced to remain surfaced while charging and effecting repairs to main engine exhaust valve.

TORO arrived at the predetermined launch point and then bottomed in that location to avoid detection. Post-exercise analysis has determined that TORO was taken under gunfire and destroyed by J.C. OWENS shortly after she broached and before the first missile was launched at 122256Z. After being re-instated TORO was able to place J.C. OWENS out-of-action at 131310Z. At 131322Z and 131326Z TORO made attacks on RICH which were unsuccessful by roll of the die. RICH made an unsuccessful attack on

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TORO at 131334Z and then at 131335Z an S2F aircraft made bloodhound attacks on TORO. These later attack signals were believed by TORO to be simulating a nuclear attack; therefore, she declared herself out-of-action. After surfacing, TORO and RICH mutually agreed that RICH had placed the submarine out-of-action and that no nuclear attacks had been made.

The following detections were reported by TORO during the exercise.

a. Aircraft - visual

ASW	3
Commercial	1
Unclassified	3

b. Shipping-sonar

ASW	8
Merchant	11
Unclassified	2

c. Shipping Visual

ASW	1
Merchant	5
Unclassified	2

d. ECM contacts

Aircraft	3
Surface ships	0

During the exercise the following genuine detections were made on TORO:

a. Aircraft - None.

b. Surface ships

Possibly genuine	0
Genuine	2

c. SOSUS

Genuine	1
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USS BLENNY

1. Policy.

BLENNY was required to make an SOA of 3.1 knots. Her transit plan called for snorkel periods at night only and spending an absolute minimum amount of time at periscope depth during daylight hours to copy the U.S. broadcast. Electronic silence was to be maintained unless ship's safety required otherwise. ECM would be used freely during snorkel periods. Submerged transit depths and speeds would depend on the layer depths encountered.

2. Transit.

The transit was conducted as planned with the following deviations being made due to the tactical situation and weather conditions. Poor weather during the early transit stage enabled BLENNY to make several high speed surface runs which reduced the required SOA beyond snorkel expectations while allowing charging at the maximum rate. Improvement in the weather made surfaced operations very subject to detection, therefore she went back to her plans for night snorkel periods. High CO2 concentration and excessive speeds required to maintain periscope depth while copying U.S. broadcast during non-snorkel periods made it necessary to snorkel-charge during daylight hours on 9 December. At 092218Z, BLENNY was placed out-of-action by R.A. OWENS, BASILONE, helicopter and aircraft.

After being placed back in action BLENNY completed her transit and arrived at the prescribed launch position ahead of schedule. Full advantage of a fishing trawler's presence was used to snorkel-charge from 120330Z to 120445Z and again from 0545-0720 at a position about 30 miles south of the launch point.

BLENNY's launch was detected by ASW forces and at 130237Z, she was placed out-of-action by RESTIGOUCHE. Inasmuch as BLENNY had been previously placed out-of-action by R.A. OWENS, this launch was not successful. After reinstatement BLENNY made successful attacks on RESTIGOUCHE and COLUMBIA at 131138Z and 131354Z respectively. Both were declared out-of-action as a result of these attacks. RESTIGOUCHE was placed back in action and at 131457Z she again placed BLENNY out-of-action.

The following detections were reported by BLENNY during this exercise:

a. Aircraft-visual

ASW	4
Commercial	0
Unclassified	2

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b. Shipping-sonar

Warship	7
Merchant	3
Unclassified	0

c. Shipping-visual

Warship	3
Merchant	6
Unclassified	0

d. ECM contacts

Aircraft	9
Surface ships	3

During the exercise the following genuine detections were made on BLENNY:

a. Aircraft - None

b. Surface ships

Possibly genuine	0
Genuine	2 (plus K-41 which is not counted in the summary)

c. SOSUS

Genuine	7
---------	---

USS TUSK

1. Policy.

The track which TUSK was to transit required an SOA of 3.0 knots. She planned to conduct 85% of the transit submerged on the battery, 10 $\frac{1}{2}$ % snorkeling and 4 $\frac{1}{2}$ % surface charging. Complete electronic silence was to be maintained unless the safety of the ship required otherwise. Zig-zag maneuvers were planned during snorkel and surfaced periods as well as to remain well clear of known sonar and visual contacts. Offset courses were also planned to counteract the effects of the Gulf Stream.

2. Transit.

The transit was conducted as planned with the exception that two

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surfaced periods were changed to snorkel times as the weather at the specified times did not favor surface operations and the necessary SOA had been reduced considerably. The result was that only $1\frac{1}{2}\%$ of the transit was conducted on the surface vice the planned $4\frac{1}{2}\%$.

At 110013Z, TUSK heard echo ranging from a ship later determined to be CHAUDIERE. An evasion course was taken at a depth of 350'. There was a 6° negative layer at 250 feet. Underwater telephone transmissions were heard from CHAUDIERE at 130133Z indicating that she had made 2 ringer and 1 bloodhound attacks on an unknown submarine contact. Inasmuch as TUSK considered these attacks to be made from ranges in excess of 10,000 yards no action was taken. Transmissions were heard again at 130150Z, indicating two additional ringer attacks had been made by CHAUDIERE. Ranges of these attacks were judged to be in excess of 15,000 yards by TUSK. Inasmuch as TUSK did not come to periscope depth or roll the die (as specified in the umpire rules under these conditions) TUSK is considered out-of-action as of 110133Z thus negating what had previously been considered a successful transit and launch. TUSK retained intermittent contact on CHAUDIERE until 110605. Reconstruction and evaluation of this incident by analysis has given CHAUDIERE only a possibly genuine contact on TUSK; however, as indicated above, TUSK is considered out-of-action for failure to comply with the umpire rules.

This incident also caused TUSK to miss a planned snorkel period which in turn resulted in a lower battery capacity at launch than had been planned.

The following detections were reported by TUSK during exercise:

a. Aircraft-visual

ASW	3
Commercial	0
Unclassified	1

b. Shipping-sonar

ASW	8
Merchant	9
Unclassified	6

c. Shipping-visual

Warship	1
Merchant	5
Unclassified	4

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d. ECM contacts

Aircraft	6
Surface ships	6

During the exercise the following genuine contacts were made on TUSK:

a. Aircraft - None

b. Surface ships

Possibly genuine	1
Genuine	0

c. SOSUS

Possibly genuine	0
Genuine	32

USS SAILFISH

1. Policy.

SAILFISH was required to make an SOA of 2.9 knots. The transit plan was based on the fact that intelligence indicated no submarine opposition would be met and that the greatest source of possible detection was from SOSUS and aircraft. In order to minimize detection by aircraft it was decided to snorkel as deep as possible and with a maximum snorkel duration of 30 minutes for SOSUS evasion. No zig zag plans were made due to the absence of submarine opposition. It was considered appropriate not to snorkel while copying U.S. broadcast as the ASW forces were aware of this schedule and would no doubt be extra vigilant at these times. Due to previous limitations on the ship's generator, plans were made to snorkel-charge on 3 engines while making good speed of 3 to 5 knots. Electronic silence was to be maintained unless the safety of the ship demanded otherwise. Maximum usage would be made of ECM radio traffic interceptions while at periscope depths; however, it was not intended to secure snorkeling unless an ECM contact appeared to be concentrating on the immediate area of SAILFISH. It was desired to reduce SOA necessary to 1.5 knots for the final approach to the launch point.

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2. Transit.

The transit was conducted as planned for the first day and a half; however, a series of material casualties caused several departures from the planned routine. The most serious of these were loss of one main engine for the remainder of the exercise at 081717Z, ECM out of commission from 081717Z to 091752Z and improper operation of and finally complete loss of ability to raise communication antenna and snorkel masts. The result of all the above caused SAILFISH to snorkel at keel depth, 48 feet for the last day of the exercise, thereby presenting a large radar target. The battery capacity of SAILFISH was less than 25% for the last two days of the exercise and at launch time it was only 13%.

In spite of all the above, SAILFISH was detected only twice during her transit, both by SOSUS, and thus she was able to successfully launch all four of her missiles.

The following detections were reported by SAILFISH during the exercise:

a. Aircraft-visual

ASW	0
Commercial	0
Unclassified	0

b. Shipping-sonar

Warship	8
Merchant	5
Unclassified	5

c. Shipping-visual

Warship	0
Merchant	1
Unclassified	0

d. ECM contacts

Aircraft	19
Surface ships	0

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During the exercise the following genuine valid detections were made on SAILFISH:

- a. Aircraft - None
- b. Surface ships - None
- c. SOSUS

Possibly genuine	0
Genuine	2

HMS ASTUTE

1. Policy.

The required SOA for ASTUTE during the exercise was 2.6 knots. It was planned to snorkel for four $1\frac{1}{2}$ hour periods each day. Transit speed during snorkel-charging periods would be seven knots while battery speeds at periscope depths and deep would be two knots. It was desired to arrive in the vicinity of the launch position a day and one-half early. This would enable the completion of a full battery charge prior to launch time. Another factor which influenced this plan was the desire to spend as little time as necessary in the Gulf Stream with its prevailing good sonar conditions. Radar was to be used while snorkeling at night or other low visibility conditions for safety purposes on a two sweep every six minute basis. The only radio transmissions anticipated were those necessary to meet check report requirements.

2. Transit.

ASTUTE conducted her transit as planned except as noted below. Snorkeling periods were of much shorter duration than the $1\frac{1}{2}$ hour ones which had been desired. This resulted in ASTUTE snorkeling 45 times in the six day period vice the anticipated 24. Reduction of these periods was caused by very frequent aircraft contacts both visually and by ECM. ASTUTE actually arrived at her launch position two days early; however, due to heavy aircraft concentration in this area she was unable to completely charge batteries and her capacity at launch time was only 50%.

The submarine breached at 122234Z for her countdown and green flares indicating missile firings launched at 122239Z and 122241Z. A very strong ECM contact developed during the launch; however, no attacks ensued.

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Inasmuch as there were several fishing trawlers in the vicinity, ASTUTE decided to surface, turn on navigational lights and make a high speed surface transit to the southwest while charging. This continued for about one hour at which time ASTUTE submerged and remained apparently undetected by air and surface ASW forces. At least one aircraft was sighted illuminating fishing vessels in the area during the high speed transit.

Check report requirements placed on ASTUTE by national authority and the poor communications prevailing resulted in ASTUTE spending a total of seven very uncomfortable hours at communications depth with a portion of her sail exposed, while passing these messages.

The following detections were reported by ASTUTE during the exercise:

a. Aircraft-visual

ASW	16
Commercial	1
Unclassified	3

b. Shipping-sonar

Warships	2
Commercial	1
Unclassified	5

c. Shipping-visual

Warships	2
Commercial	3
Unclassified	0

d. ECM contacts

Aircraft	14
Surface ships	2

During the exercise the following genuine detections were made on ASTUTE:

a. Aircraft

Possibly genuine	0
Genuine	1

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b. Surface ships - None

c. SOSUS

Possibly genuine

Genuine

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CHAPTER III

Section 3

Air Operations

1. A total of 374 sorties were flown by 53 VP/MP and 72 VS shore-based aircraft for a total of 3244.3 hours of which 1986.7 hours were on task. Not including 2 contacts on out-of-action and non-exercise submarines, this effort resulted in 7 valid initial detections of exercise submarines. Three of these were LOFAR detections gained by the same 404 squadron Argus on the same submarine. The remaining 4 detections were made by one CS2F, two 405 Squadron Argus, and one VP-661 P2V. This flight activity resulted in one contact for each 468 hours flown or 284 hours on task.

2. Carrier based aircraft flew:

- a. 28 AD5W sorties for 97.5 hours with 56.8 hours on station,
 - 138 HSS sorties for 337.0 hours with 171.5 hours on station,
 - 172 S2F sorties for 645.0 hours with 363.0 hours on station,
 - 103 CS2F sorties for 376.0 hours with 317.7 hours on station,
- and a total of 441 sorties for 1455.5 hours with 909.0 hours on station.

No initial detections of exercise submarines resulted from the carrier based flight activity.

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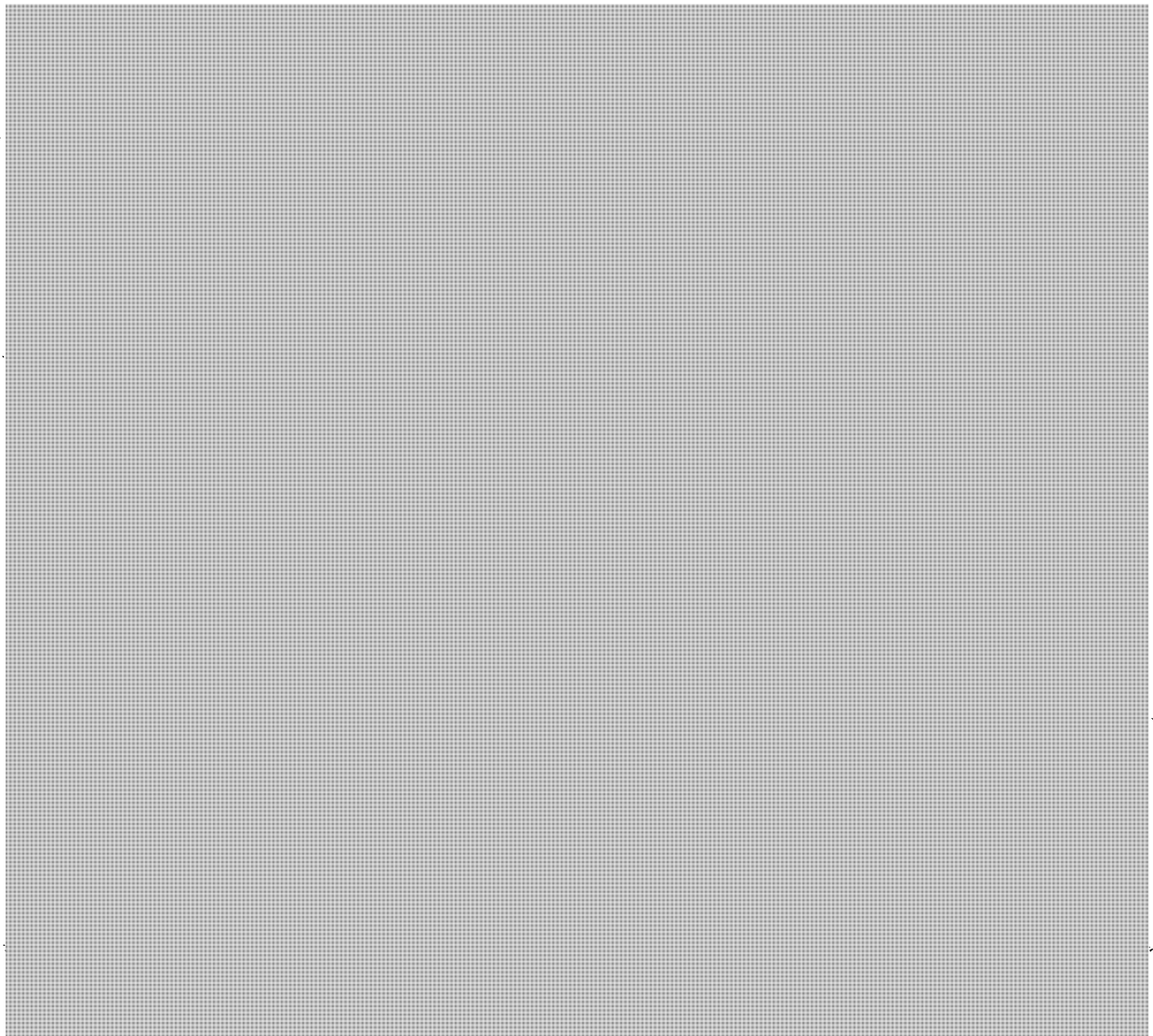
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Chapter IV

SOSUS ANALYSIS

Section 1

Introduction



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a. EXERCISE SUBMARINES: Six submarines including one British "A" class, HMS Astute; three U.S. conventional snorkel-equipped submarines, USS BLENNY, USS TUSK, and USS SAILFISH; one non-snorkel-equipped conventional submarine, USS TORO; and the nuclear powered USS NAUTILUS. Their primary mission was to penetrate the exercise area undetected; achieve missile launching positions; and to simulate firing missiles against pre-selected land targets in the CONUS and Canada. Five exercise submarines were given these capabilities: diesel propulsion, two 200 mile range ballistic missiles, no inertial navigation system. The remaining submarine, USS SAILFISH, was given the following capabilities: nuclear propulsion, four 500 nautical mile range missiles, inertial navigation.

b. Snorkel Opportunity. A snorkel evolution conducted by an exercise submarine during the period from COMEX of Phase II to FINEX within the boundaries of the exercise area.

c. SOSUS Snorkel Opportunity. A Snorkel Opportunity to seaward of the 1200 fathom contour.

d. Surface Opportunity. A surfaced evolution during which an exercise submarine operated diesel engines during the period from COMEX of Phase II to FINEX within the boundaries of the exercise area.

e. SOSUS Surface Opportunity. A Surface Opportunity to seaward of the 1200 fathom contour.

f. SOSUS Snorkel Detection. A detection of a SOSUS Snorkel Opportunity by one or more SOSS.

g. SOSUS Surface Detection. A detection of a SOSUS Surface Opportunity by one or more SOSS.

h. System Detection. A detection of a snorkel or Surface Opportunity by one or more SOSS.

i. Multi-Station Detection. Detections of a Snorkel or Surface Opportunity by two or more SOSSs where contacts are held simultaneously (taking into account the differences in acoustic propagation times between the position of the submarine and the SOSS arrays involved). When two or more stations are holding simultaneous contact and another station not previously in contact makes a detection on the same submarine, this detection is considered part of the multi-station detection.

j. SOSUS Probability Area (SPA). A SPA may be designated (by either the CTG 81.1 Evaluation Center or a particular SOSS which has been designated the Correlator and Evaluator) on the basis of

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a. Multi-Station Detection by use of the appropriate [REDACTED] bearing sectors (as determined by the reported bearings) for each of the SOSS holding contact. The extension of these sectors produces a common area of detection which is called the SPA and the intersection of their center bearings is defined as the Recommended Search Datum (RSD).

k. MANEUVERING BOARD SOSUS PROBABILITY AREA (MBSPA) is a PROBABILITY AREA derived from an appreciable bearing drift obtained from a single station. The MBSPA is formed using the maximum and minimum estimates of target speed [REDACTED]. The MBSPA formed will be a trapezoid, the bearing sector boundaries forming two opposite non-parallel sides and the DR tracks using the maximum/minimum speed estimates the two parallel sides.

l. SOSUS ESTIMATED POSITION (SEP). The most probable position of the target as determined from incomplete data or data of questionable value, position wise. Normally all multi-station position estimates on targets detected by the SOSUS will be passed as a SPA, but occasions will arise from time to time when sufficient information is not available for the establishment of a SPA. This situation normally occurs when the locations of the detecting arrays provide poor geometry for establishment of a SPA; [REDACTED] and arrays holding the target on terminal beams only. The watch officer, when required to establish a SOSUS Estimated Position, considers all intelligence available, i.e., plot, time since last detection, exercise area, number of beams target is appearing on, etc. and passes the coordinates of the SEP with an accompanying radius of reliability. The size of this radius [REDACTED] reflects the confidence the watch officer places in the position estimate of the SEP. The radius passed encompasses an area that has a high probability of containing the target. A MBSEP is a SOSUS estimated position established by use of the MB plotting technique. As the target speed must in most cases be assumed the radius of reliability passed is centered on the estimated target position, established by the MB solution.

m. Target Bearing. The true bearing of a target from one of the arrays. SOSUS bearings are plotted on a SOSUS Working Plot, [REDACTED]

n. Target. A contact detected by a SOSS.

o. Target Number. A number between 001 and 499 assigned in sequence by the detecting SOSS to each of its targets that fall into the current reportable category as given in COMOCEANSYSLANTINST P003360.1B of 30 April 1961. Subsequent contact by that SOSS believed to be on the same Target will retain the same Target Number if contact is not lost for more than three hours.

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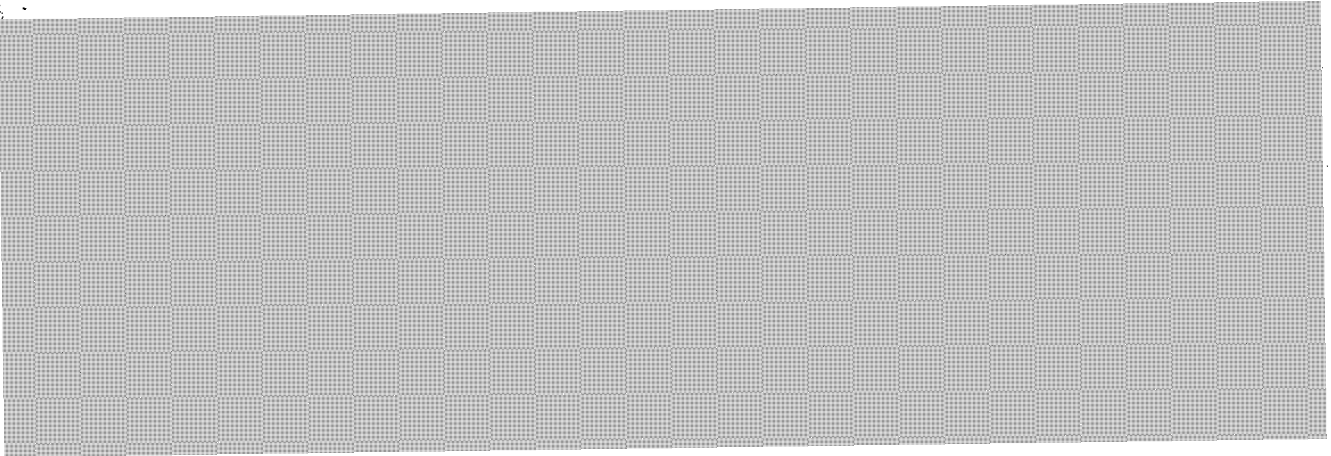


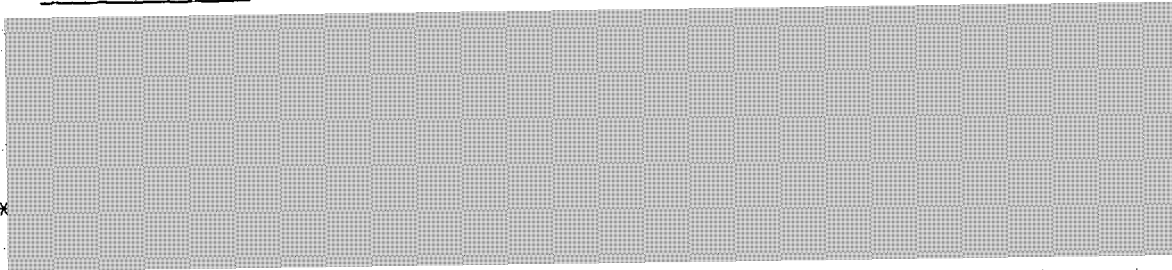
TABLE 1

PARTICIPATING SOSS WITH LETTER AND NUMBER DESIGNATORS

SOSS LOCATION

LETTER

NUMBER



NON-PARTICIPATING SOSUS STATIONS WITH LETTER AND NUMBER DESIGNATORS

SOSS LOCATION

LETTER

NUMBER



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SOSUS ANALYSIS

Section 2

Overall Tactical Plan and Contact Reporting Procedures

1. Participating NAVFACs originated grid messages on all targets evaluated by the NAVFAC as exercise submarines and passed them to communication NAVFACs for relay to CTG 81.9 and CTG 302.0. Communicating NAVFACs passed their own exercise traffic directly to CTG 81.9, CTG 302.0 and to A/C. Nantucket and Bermuda were designated as communications NAVFAC for A/C. CTG 81.1 was responsible for originating grid messages to CTG 81.9 and CTG 302.0 on targets held by non-participating NAVFACs which were evaluated as exercise submarines either by the non-participating NAVFAC or CTG 81.1.
2. Coincident with reporting initial contacts by grid messages, participating NAVFACs originated KAC 107 and KAC 1 amplifying messages to CTG 81.9 and CTG 302.0 via communicating NAVFACs giving their evaluation of target propulsion (type-diesel or nuclear). The same amplifying formats were used to pass additional amplifying information such as signature reliability and other targets believed to be from the same contact source.
3. CTG 81.1 Amplifying and Evaluation Reports. Each SOSS evaluated its own targets on the basis of locally available information. CTG 81.1 acting as Correlator and Evaluator (C and E) evaluated all targets and originated amplifying SOSUS reports on these targets to CTG 81.9 and CTG 302.0. These SOSUS reports, sent in numerical sequence by CTG 81.1 detailed subject targets with regard to engine type, classification reliability, SOSS involved, and position information. The participating NAVFACs negated their targets either upon request by CTG 81.1 or through further analysis of locally available SOSUS data. Additionally, CTG 81.1's SOSUS reports attempted to correlate SOSUS contacts with current KILO incidents.
4. SITREP/SITSUM Reports. In addition to SOSUS reports, CTG 81.1 originated SITREPs at four hour intervals along with daily SITSUMS to CTG 302, CTG 81.2, CTG 81.9, and CTG 302.0. These reports contained CTG 81.1's latest assessment of SOSUS targets detected within the reporting or summary period. The SITSUM reports correlated SOSUS contacts with KILO incidents and attempted to localize the operating areas for each of the exercise submarines. Targets evaluated as non-exercise in the SITREPs were negated by the appropriate NAVFAC.

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SOSUS ANALYSIS

Section 3

SOSUS Detection and Evaluation Performance

1. This section presents the quantitative results obtained from the analysis of available data and attempts to discuss and evaluate their significance. It is first necessary to discuss some aspects of SOSUS detection and classification and to distinguish between Detected Opportunities and Targets.

2. Detection. The detection process requires first the printing of discrete frequency lines on a Lofargram attributable to the output of an acoustic source at sea propagated to a SOSUS hydrophone array. Since submarines are the acoustic sources or targets of primary interest and since each submarine produces a unique, characteristic family of discrete acoustic frequencies referred to as a target signature, then in the context assumed here, detection also requires the recognition and reporting only of submarine signatures (referred to as reportable targets). Unfortunately, signatures are seldom unambiguous. This is partly because of difficult-to-distinguish similarities between the signatures of various sources (especially submarines of the same type); partly because of extraneous masking signatures attributable to non-reportable targets; partly because of attenuation and distortion of the signature during propagation to the detecting array; and partly because of limitations in the resolving power of the SOSUS receiving, signal processing, and display equipment. Thus the detection process itself involves some interpretation and is, in effect, an initial classification or evaluation. Only detections of exercise submarines are regarded as valid in the context of this analysis.

3. An important consideration affecting SOSUS evaluation performance depends on the ability to accurately deduce and maintain a track on each exercise submarine and thereby correlate successive detection on the same submarine with its estimated track. Other sources of intelligence from mobile forces (such as visual sightings sinkers, sonar contacts, etc.) can also provide useful information. In this way, as Targets are reported, an attempt is made to correlate them with the summary plot of estimated tracks. Those Targets not fitting the picture are either rejected as being NON-EXERCISE or are designated as separate Exercise submarines. (It should be noted that correlation involves not only compatibility with the summary plot but with signature characteristics as well.) CTG 81.1 was able to exploit these techniques because exercise submarines were of different types; they approached the CONUS in concert on roughly parallel tracks; and the exercise area was delineated by known specific boundary lines. Whether enemy submarines would exhibit a similar variety of different signatures and/or would approach the CONUS in concert is a matter of conjecture.

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4. Opportunities. The convention of regarding each period of submarine diesel operation as a snorkel or surface detection opportunity has been followed. But in the case of NAUTILUS no simple or completely satisfactory criterion for defining a detection opportunity is immediately apparent. However, exercise data show speed, or more specifically, shaft R.P.M. to be a major controlling factor. Therefore, for the purpose of this analysis, each period during which NAUTILUS made standard [REDACTED] or greater shaft turns [REDACTED] without interruption has been arbitrarily defined as a detection opportunity. Performance of the SOSUS against SSNs in general is the subject of continuing analysis effort. Also, in addition to snorkel, surface, and NAUTILUS opportunities, it is customary to categorize a particular opportunity as being SOSUS or NON-SOSUS according to whether it occurs outside (to seaward) [REDACTED]
[REDACTED]

5. Targets. A Target Number is assigned by a detecting SOSS to each of its detections which falls into the current reportable category as given in COMOCEANSYSLANTINST P003360.1B of 30 April 1961. Subsequent detections by the same SOSS, occurring within 3 hours after loss of contact and believed to be on the same submarine, retain the same Target Number. In general, then, there will be more detected opportunities (defined in the preceding paragraph) than Targets. Targets are the means by which detections are designated and reported by the SOSUS. Thus the only straightforward way to compare valid and invalid detections is by comparing valid and invalid Targets.

POST-EXERCISE ANALYSIS OF TARGETS.

6. The criteria used in correlating SOSUS Targets with detection opportunities are briefly summarized below:

a. Using the tracks and excerpts from the logs (Bell logs, graphic formats or snorkel incident reports) of the exercise submarines, all reported SOSUS signatures having any possibility of being one of these submarines are checked against the reported data.

A SOSUS contact was considered valid if the following criteria were met:

(1) The predominant harmonics were compatible with the type of submarine.

(2) Reported shaft-or-engine-RPM correlated with the SOSUS signature at the times reported taking into account acoustic propagation time to the array involved and allowing some latitude for possible inaccuracies of the submarine tachometers.

(3) The SOSUS contact bearing was compatible with the reported submarine position within the designed and/or nominal observed bearing accuracy of the AN/FQQ-1(V) (SOSUS receiving and display) equipment.

(4) The dynamic changes of the SOSUS signature correlated with reported start and stop times of the source submarine after applying corrections for acoustic propagation and small clocking errors.

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b. When any reasonable element of doubt existed, the SOSUS contact was not considered valid.

PERFORMANCE AS A FUNCTION OF SUBMARINE LOCATION.

7. Experience has shown a strong SOSUS snorkel detection dependence on geographical location or area. Accumulated detection data have indicated regions where the probability of detection is higher on the average than at other locations. From this data, it has been possible to derive iso-probability-of-detection contours over much of the Western North Atlantic. These contours, derived for both system (at-least-one-array) and multi-array-detections, represent the average performance over snorkel opportunities provided by all types of U.S. submarines; all seasons of the year; all engine types-RPMs, loadings, all aspects, etc.

8. Figure 21 is a plot of the approximate tracks of the exercise submarines displaying both detected and undetected snorkel and surface opportunities for the five conventional submarines.

It should be noted that 1 detection on TUSK was first recognized during post-exercise analysis and therefore was not reported to CTG 81.9 or CTG 302.0.

9. Table 2 is a tabulation of all submarine opportunities with regard to: duration; single and multi-station detection, and relevant averages and percentages for each submarine in the following categories: SOSUS snorkel opportunities, SOSUS surface opportunities, NON-SOSUS snorkel opportunities, and non-SOSUS surface opportunities.

10. High sea states and poor visibility throughout a considerable portion of the exercise made possible a combined total of 68 hours spent on the surface.

11.

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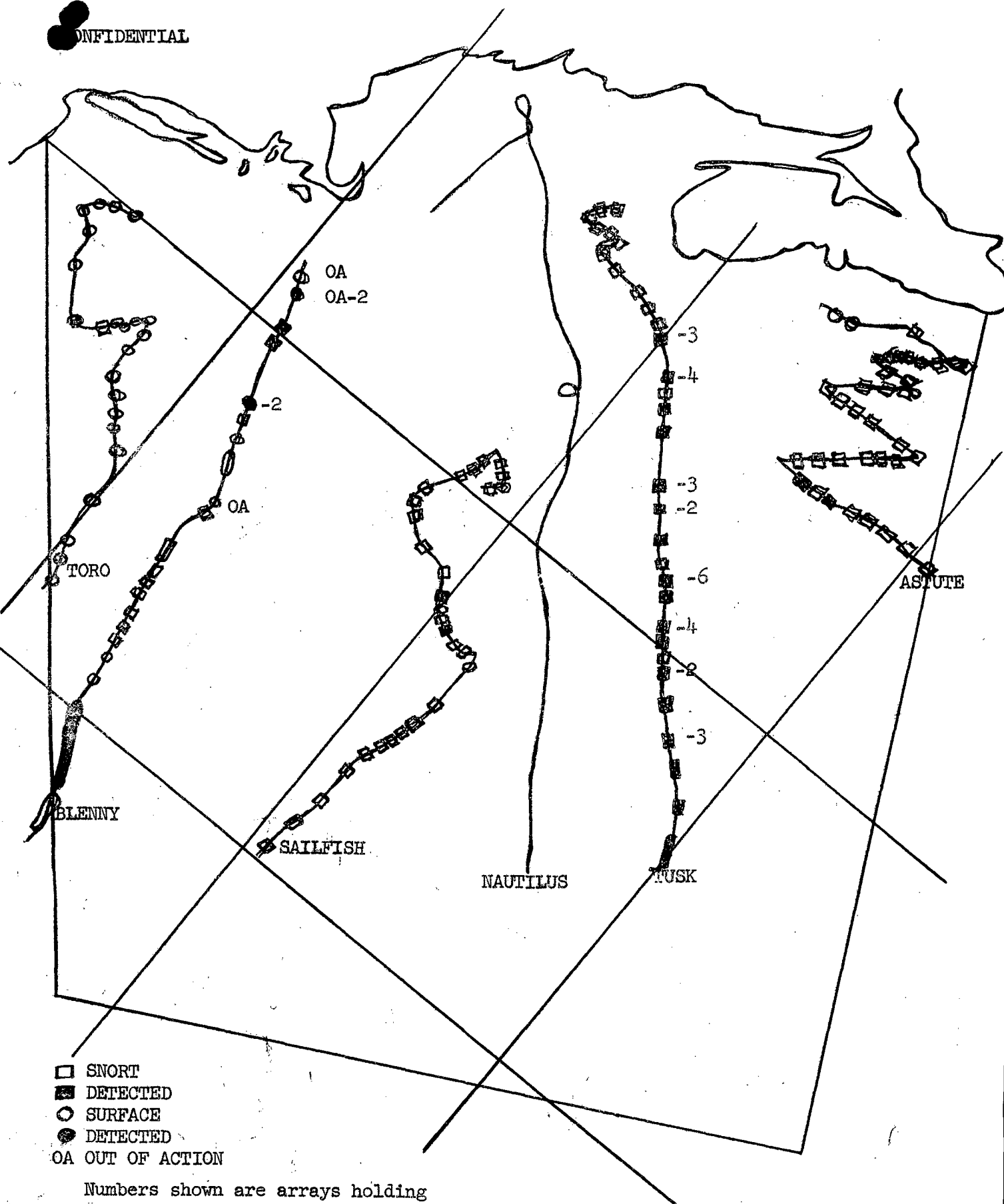
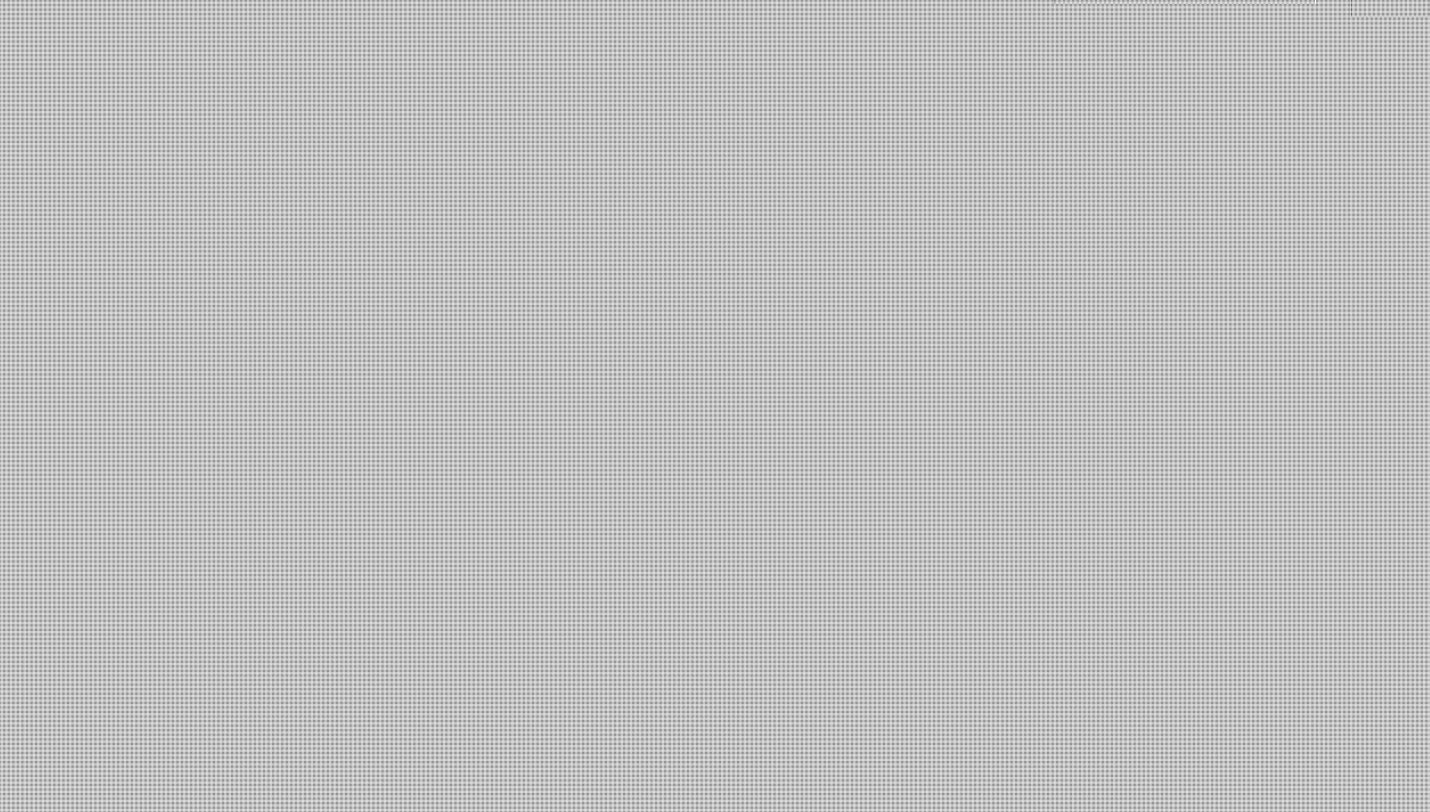


Figure 21
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TABLE 2
OPPORTUNITIES DETECTED AND REPORTED



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TABLE 2 (Cont'd)



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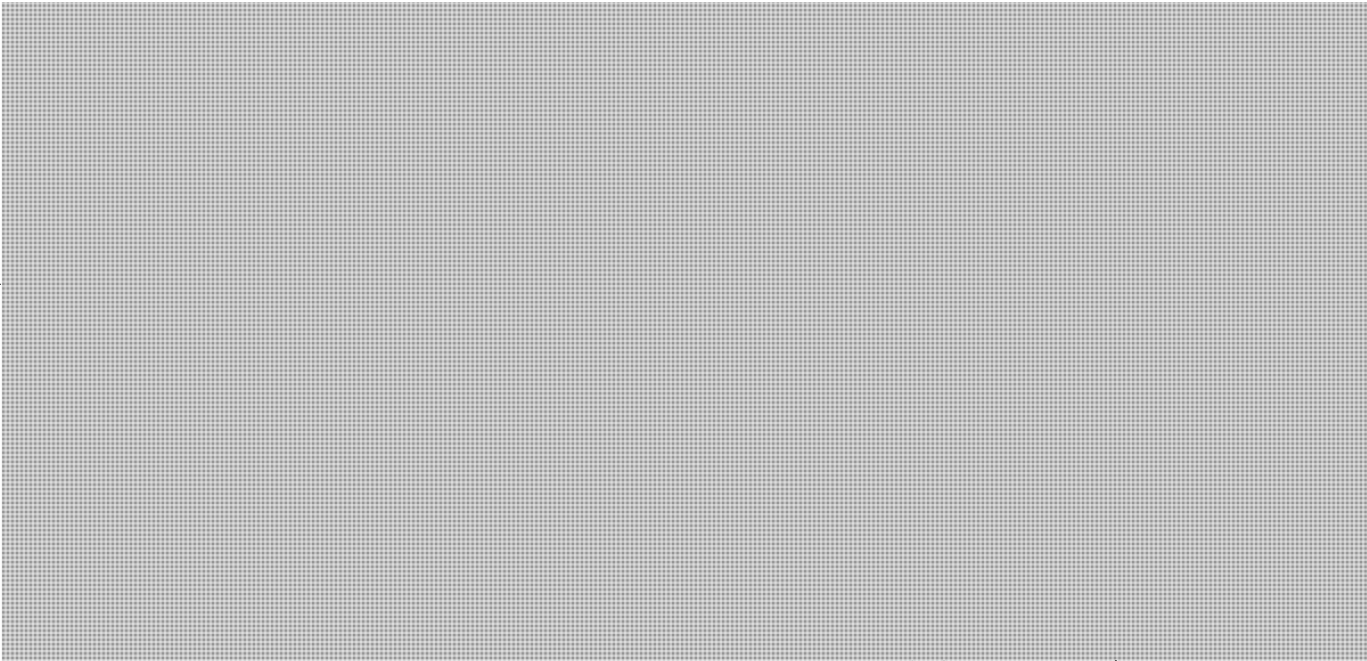
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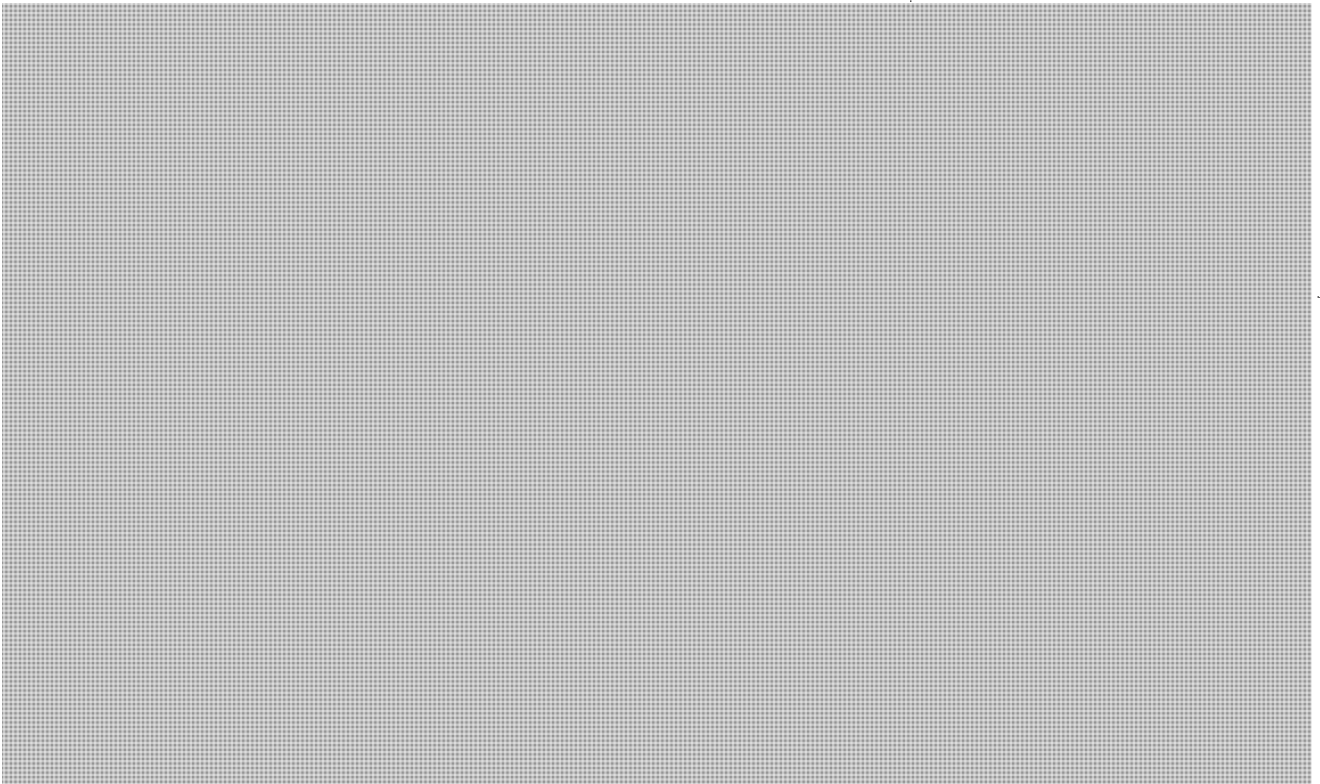
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PERFORMANCE AS A FUNCTION OF SNORKEL DURATION



PERFORMANCE AS A FUNCTION OF SUBMARINE TYPE



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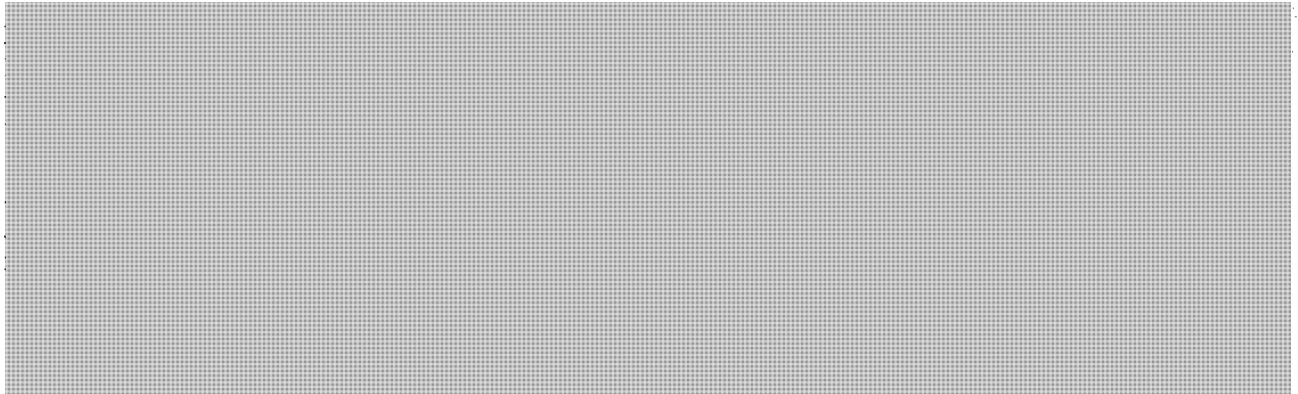
TABLE 3

ANALYSIS OF GRID MESSAGES FROM NAVFACs AND CTG 81.1 MSGS

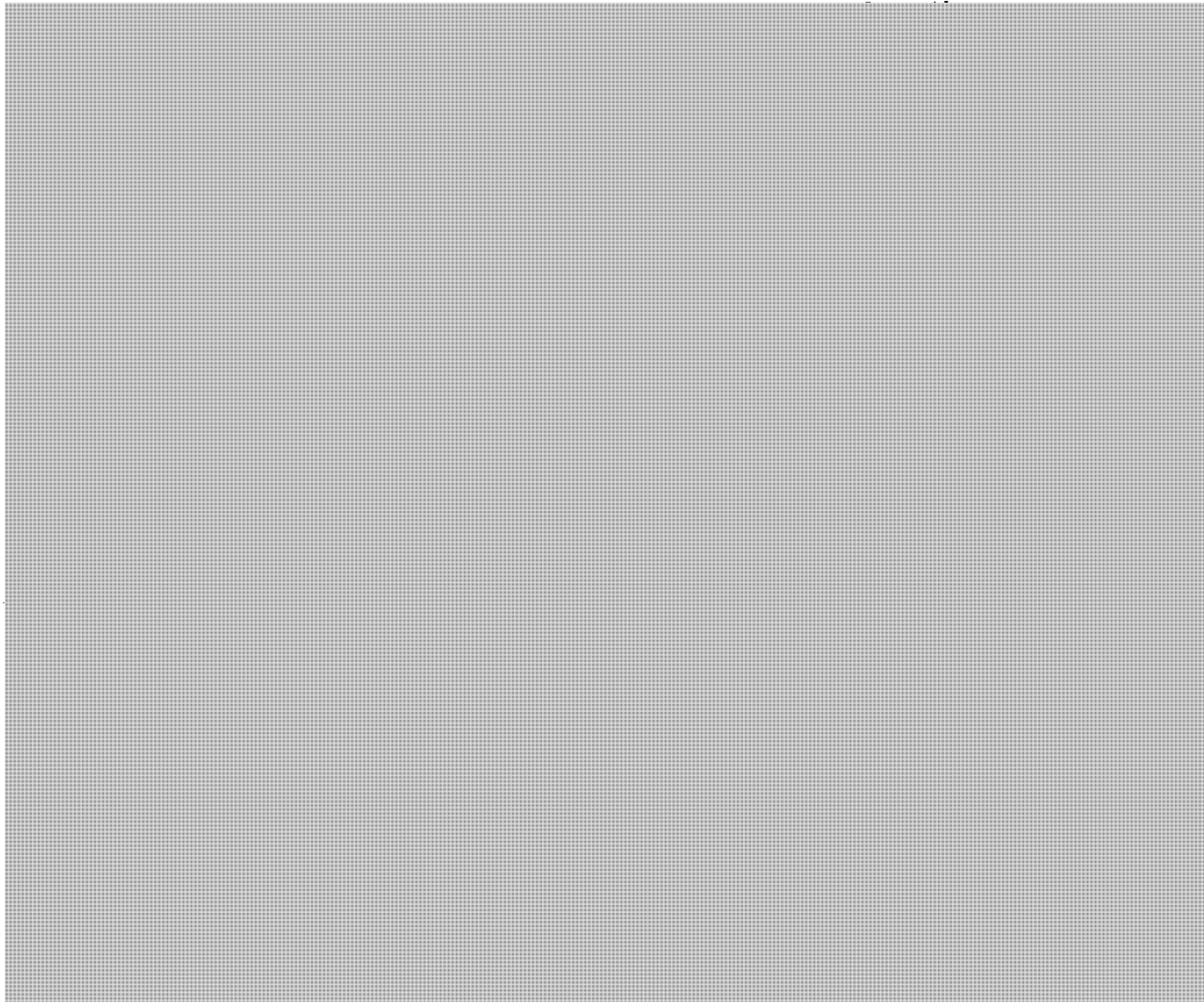


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PERFORMANCE AS A FUNCTION OF RANGE



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SOSUS ANALYSIS

Section 4

SOSUS Surveillance Performance

1. The previous section discussed SOSUS performance primarily with regard to targets and opportunities detected and classified. This section will discuss SOSUS ability to track and establish accurate position information on individually identified exercise submarines. This data will be divided into three categories as defined below: The SOSUS Probability Area (SPA); the SOSUS Estimated Position (SEP); and amplifying information referred to as intelligence.

SOSUS PROBABILITY AREA (SPA)

2. The concept of a SPA has been utilized by CTG 81.1 as the best method of reporting multi-station detection positions. A SPA is a common area enclosed by the overlapping sectors of a given angular width centered on the lines of bearing (LOB) from two or more SOSUS arrays which simultaneously hold contact on the same acoustic source. The width of all bearing sectors for Atlantic arrays has been experimentally or theoretically determined on the basis that [REDACTED] of the contacts detected on a particular LOB are contained within the assigned sector width.

SOSUS ESTIMATED POSITIONS (SEP)

3. An SEP is the most probable position of the acoustic target as determined from incomplete data or data of questionable value. A radius of reliability is passed in addition to the coordinates of the SEP. This radius may vary [REDACTED] and encompasses an area having a high probability of containing the target. In the text of this analysis, a SEP is one of the following: (1) the point of intersection of two simultaneous LOBs or an approximate point of intersection in the case of more than two non-coincident LOBs; (2) a position estimate generated on the basis of a maneuvering board solution of bearing information from a single array. The SEP is a single point, not an area. During the exercise, a radius of reliability centered on the SEP was estimated and passed in conjunction with the SEP. The size in miles of this radius reflects the position certainty from which the SEP was evolved.

INTELLIGENCE

4. The term INTELLIGENCE refers here to all additional amplifying information having any bearing on the estimated position of a contact. For example, information based on the estimated general development of the situation as deduced from the current summary plot maintained in the CTG 81.1 Evaluation Center was occasionally combined with SOSUS

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intelligence to generate a position estimate. In other instances, correlation of a SOSUS LOB with the position of a contact reported by mobile forces or with a KILO designated by CTG 81 was sometimes reported. Information falling into this category also included messages indicating that two different SOSUS Targets were believed to be on the same or on different contacts, etc.

5. Table 6 contains all position information promulgated by CTG 81.1 in the form of SPAs or SEPs. The table is arranged to correlate with assigned KILO events when such were assigned to the SOSUS positions.

6. Figure 22 is a plot of all exercise submarine tracks showing SPAs and SEPs derived from crossed bearings, and those SEPs assigned from maneuvering board solutions and other intelligence data. Valid SOSUS data refer to targets which are correlated with exercise submarines during post analysis.

COMPARISON OF EXERCISE AND POST ANALYSIS SPAs AND SEPs

7. Table 6 considers a comparison of submarine distances relative to the closest extension of the SPA or SEP as well as the distance to the RSD of the SPA or the coordinates of the SEP. Additionally Table 6 lists the targets involved in each position, their validity and the validity of the position estimate.

8. As the exercise submarines transited toward their respective launch positions,

a brief period developed in which only NAVFACs Bermuda and Barbados held contact. As the bearing from these stations converge at a narrow angle, the SPA generated was subject to considerable error.

Later revised as NAVFAC Eleuthera gained contact, the error was reduced. When Station FOX regained contact, the TUSK was localized

9. During the first 3 days of the exercise, 6 SEPs and 1 of 4 SPAs passed were generated by CTG 81.1 based on incomplete data composed of single station LOBs, non-simultaneous multi-station LOBs and maneuvering board solutions based on these reported bearings. Three of these position estimates were derived from genuine contacts and two of the three contained the submarine.

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RADIUS OF RELIABILITY CENTERED ON THE SEP



BEARING ERROR ANALYSIS

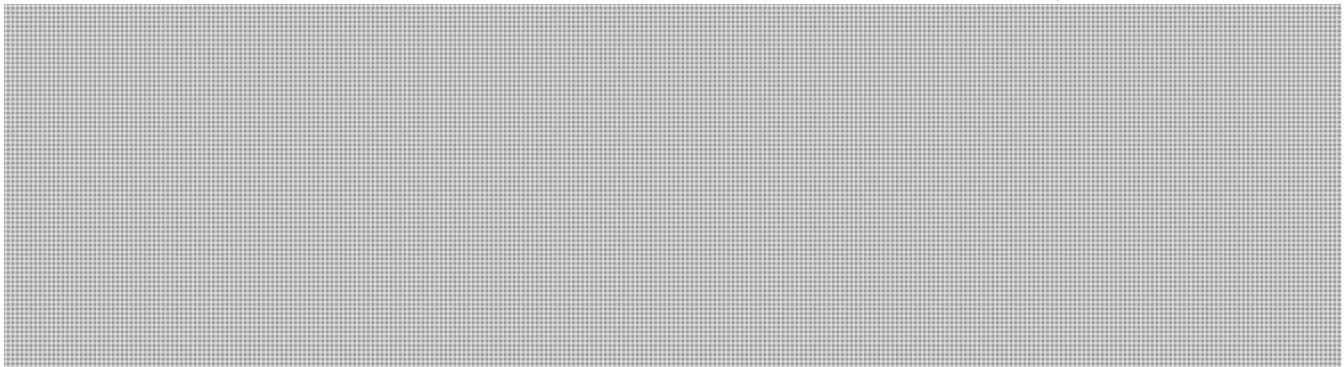


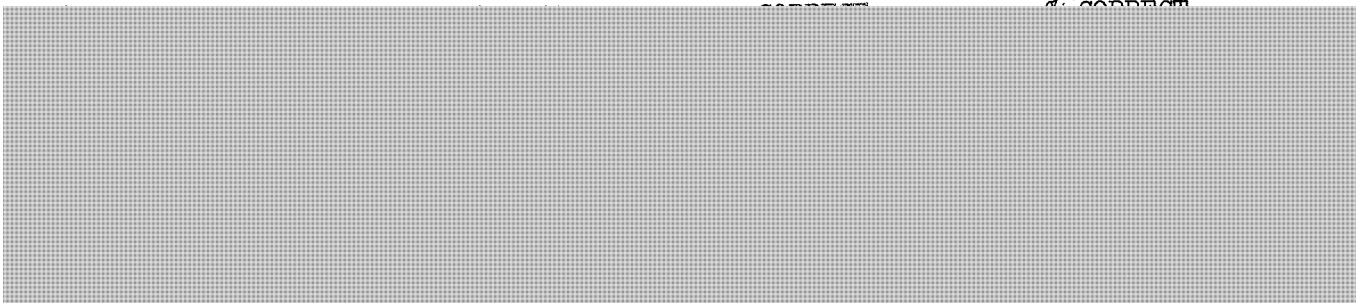
TABLE 4

CTG 81.1 SOSUS REPORT EVALUATIONS



TABLE 5

CTG 81.1 SITUATION REPORTS (SITREP) EVALUATIONS



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SPA AND SEP ANALYSIS

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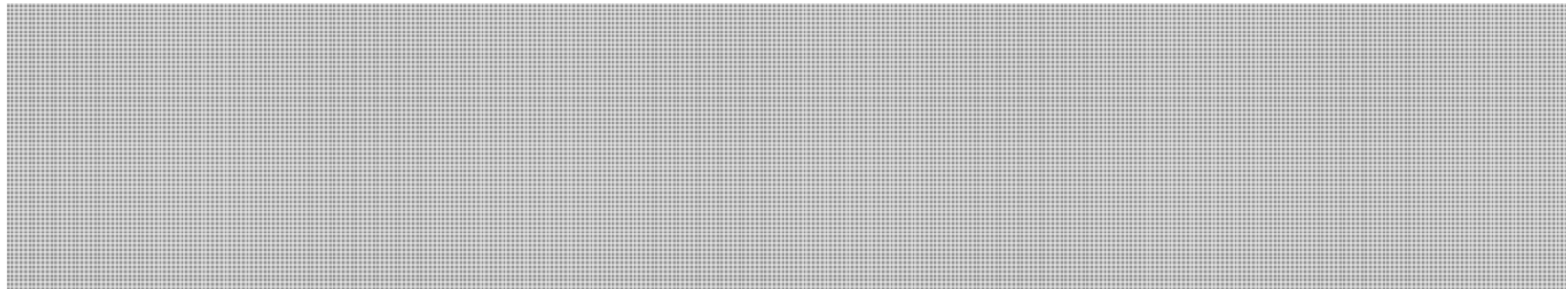
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TABLE 6 (CONT'D)



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SOSUS ANALYSIS

Section 5

SOSUS Tactical Reporting Performance

1. General. SOSUS information was used tactically both directly, i.e., NAVFAC to VP/MP/Carrier Group and indirectly, i.e., CTG 81.1/NAVFAC to CTF 302/CTG 81.2. NAVFAC Nantucket provided information direct to VP-10/21; and CTF 302 directed TG 302.2 aircraft using SOSUS investigation based on information received from CTG 81.1 and NAVFAC Shelburne. NAVFAC Argentinia, Shelburne, Bermuda, and Cape May were designated communications NAVFACs for passing information to CTG 81.9 and CTG 302.0. Indirect tactical utilization was accomplished primarily by shore-based commanders, CTF 302 and CTG 81.2 and to a lesser degree by CTG 81.9 and CTG 302.0. Evaluations from CTG 81.1 provided the primary information for indirect utilization with grid and amplifying messages from all participating NAVFACs providing a secondary, but nevertheless important source of information. This Section will describe SOSUS performance for direct tactical utilization.

NAVFAC Hatteras initially classified and reported 3 targets as exercise submarine (1 valid) Eleuthera 3 targets (1 valid); Ramey 1 (1 valid); Antigua 4 (3 valid); Barbados 1 (1 valid). All of the valid targets were TUSK except the 2 on BLENNY. Other NAVFACs are reported in detail below.

2. Argentinia Tactical Reporting Summary.

a. NAVFAC Argentinia initially classified and reported 6 targets as exercise submarines, [REDACTED] Although designated as a "Communications" NAVFAC for ASW Carrier Forces no targets were actually passed directly to them. Targets held by Argentinia were passed to ASW Carrier Groups by CTG 81.1.

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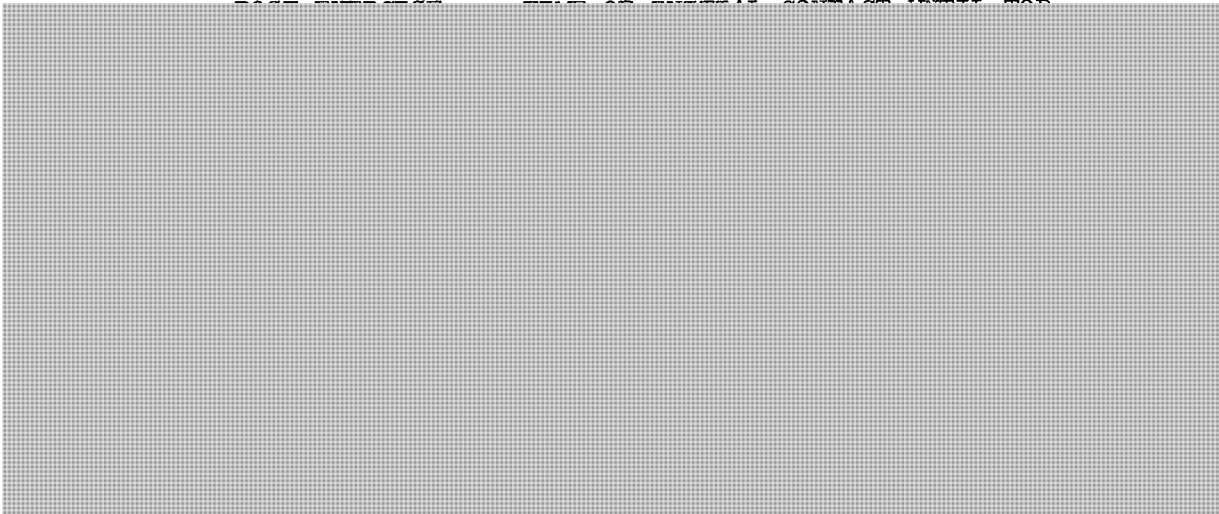
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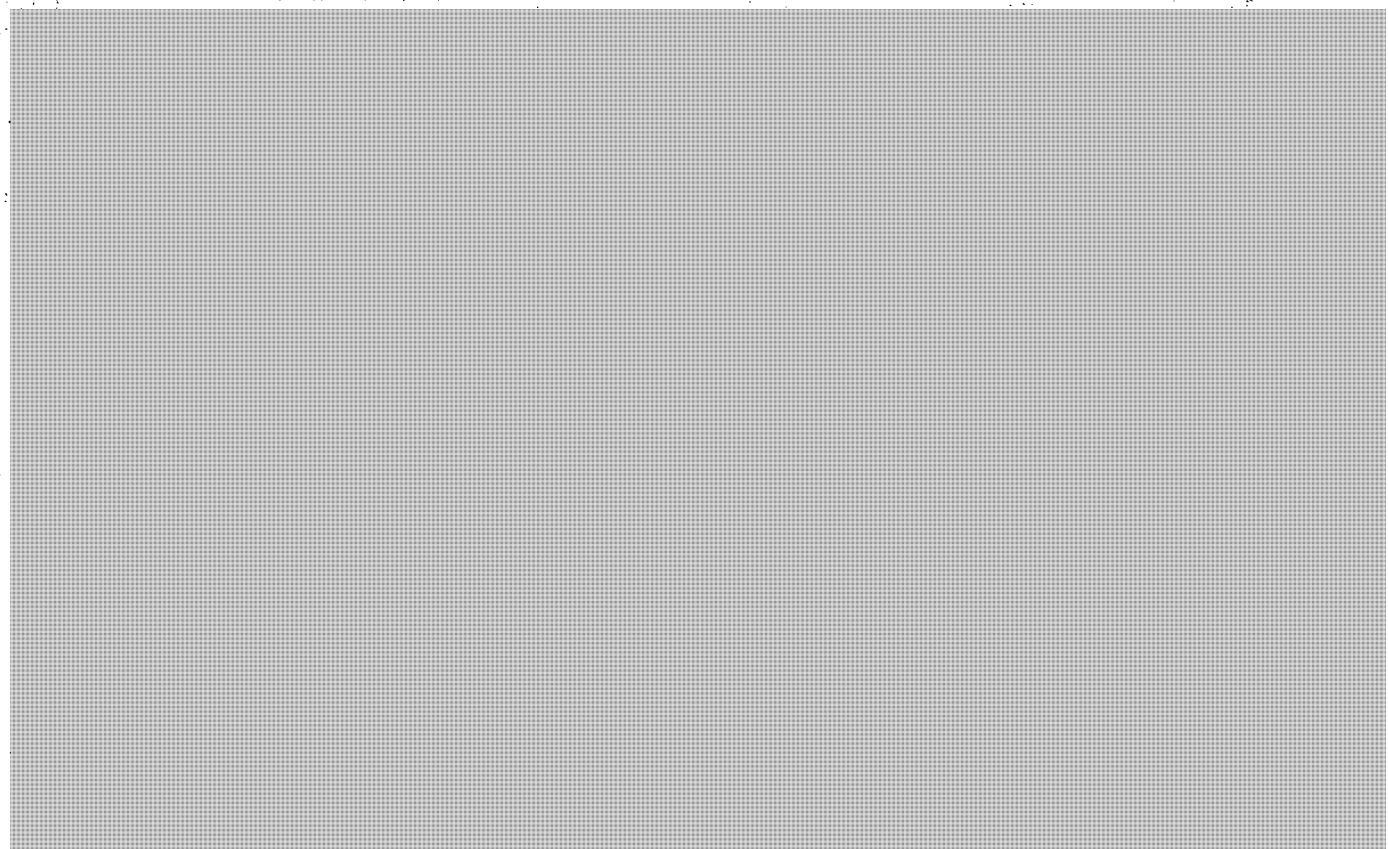
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TABLE 1

ARGENTIA TARGETS

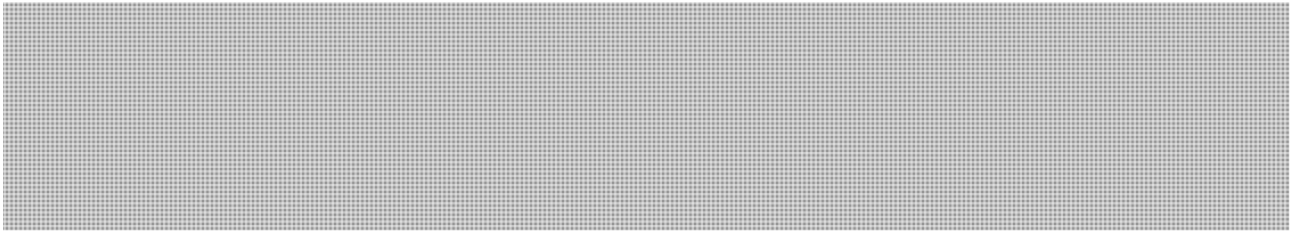


3. SHELBOURNE TACTICAL REPORTING SUMMARY.



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TABLE 2

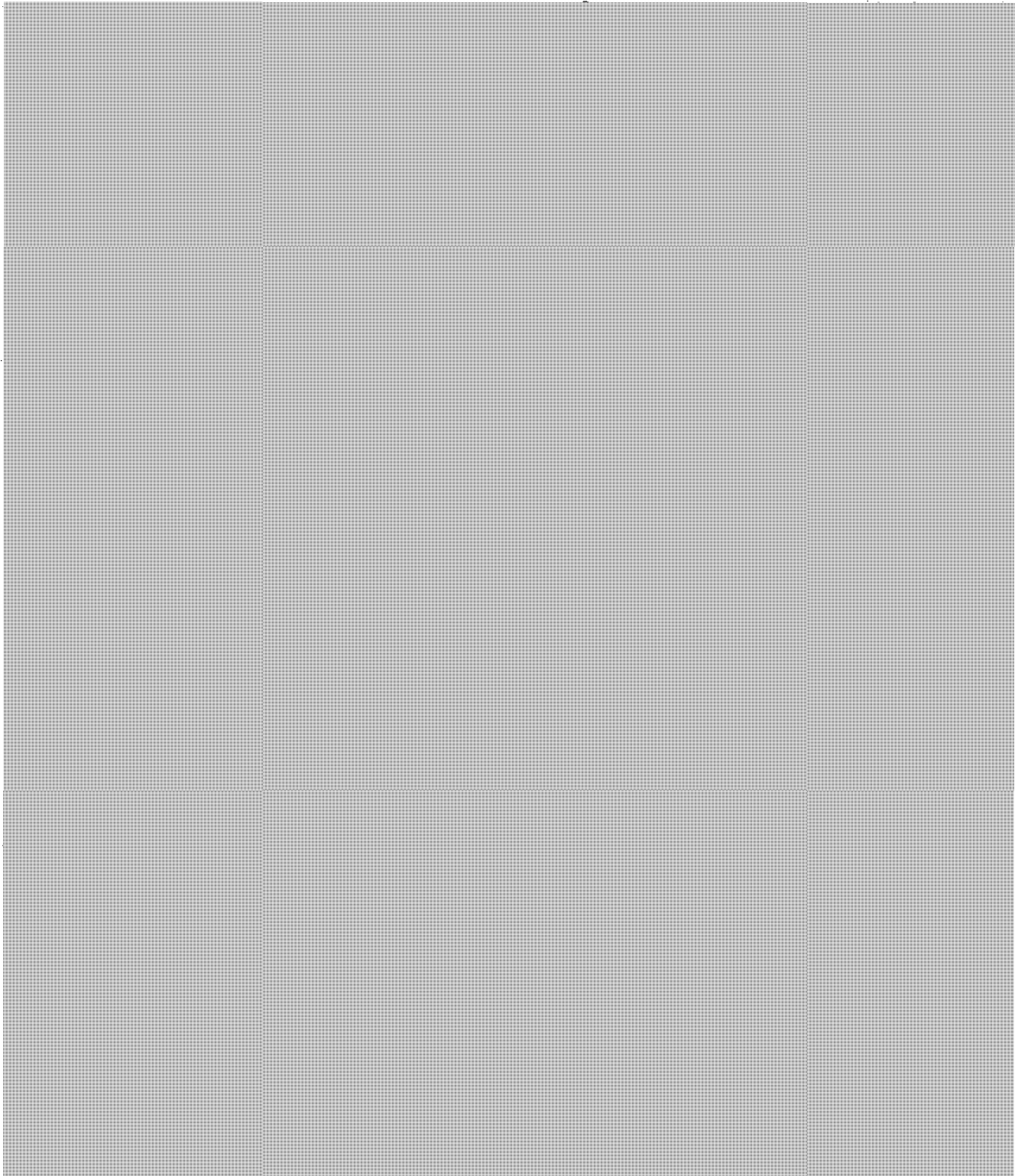
Shelburne Targets

TARGET	POST EXERCISE EVALUATION	TIME OF INITIAL CONTACT UNTIL TOD GRID-DELAY TO INVESTIGATIVE FORCES
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<u>TARGET</u>	<u>POST EXERCISE EVALUATION</u>	<u>TIME OF INITIAL CONTACT UNTIL TOD GRID-DELAY TO INVESTIGATIVE FORCES</u>
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* Passed to aircraft.

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TABLE 3

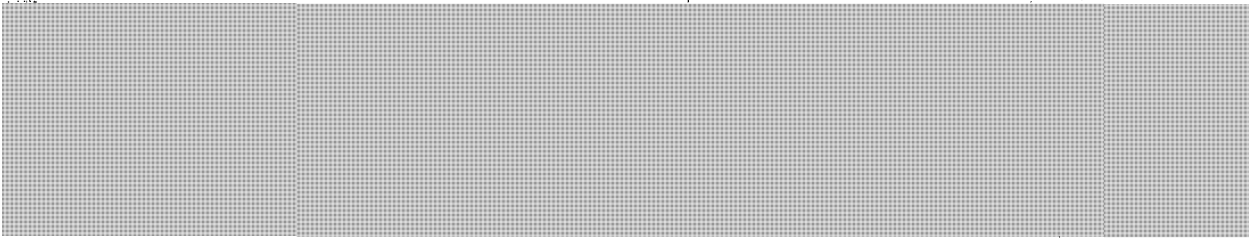
Nantucket Targets

<u>TARGET</u>	<u>POST EXERCISE</u>	<u>TIME OF INITIAL CONTACT UNTIL TOD GRID-DELAY</u>
<u>EVALUATION</u>	<u>TO INVESTIGATIVE FORCES</u>	

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5. CAPE MAY TACTICAL REPORTING SUMMARY.



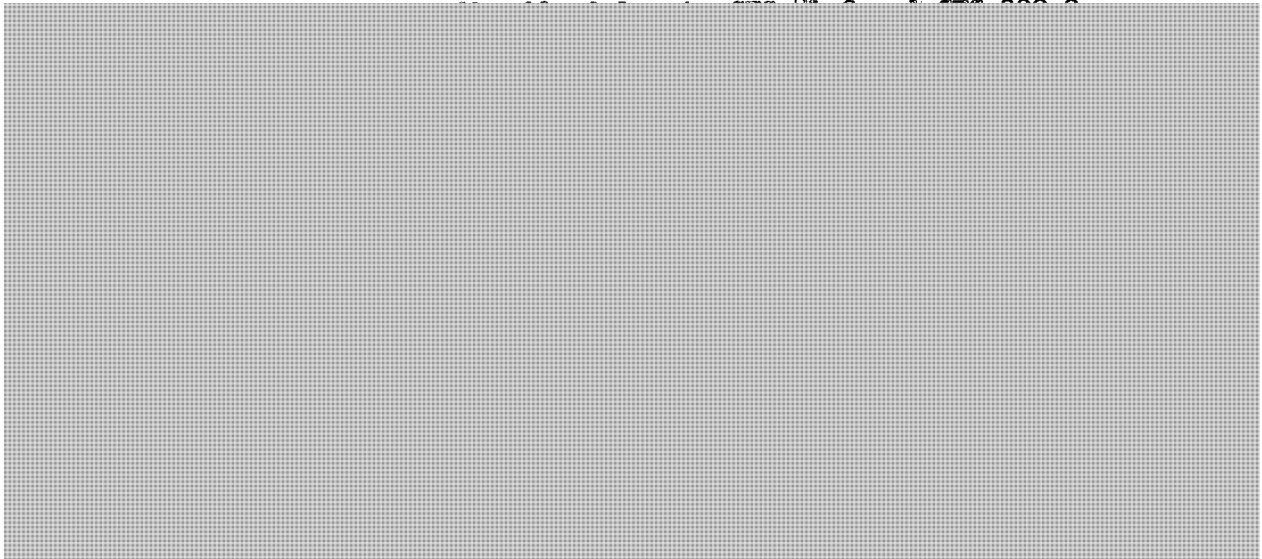
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TABLE 4

Cape May Targets

<u>TARGET</u>	<u>POST EXERCISE</u>	<u>TIME OF INITIAL CONTACT UNTIL TOD GRID-DELAY</u>
	<u>EVALUATION</u>	<u>TO INVESTIGATIVE FORCES</u>



6. BERMUDA TACTICAL REPORTING SUMMARY.

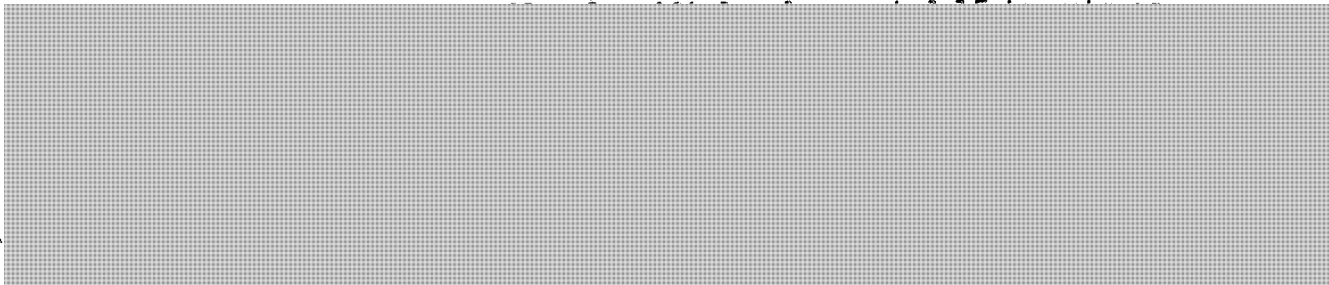


TABLE 5

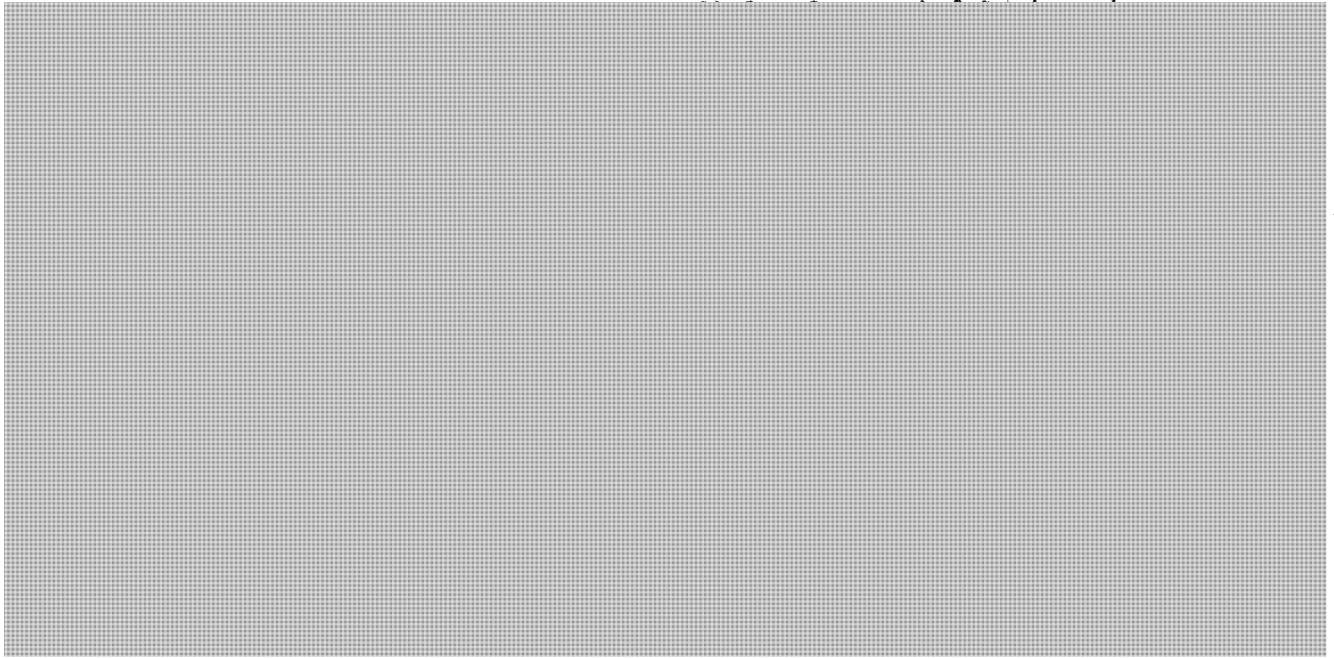
Bermuda Targets

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4. NANTUCKET TACTICAL REPORTING SUMMARY.



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TABLE 6



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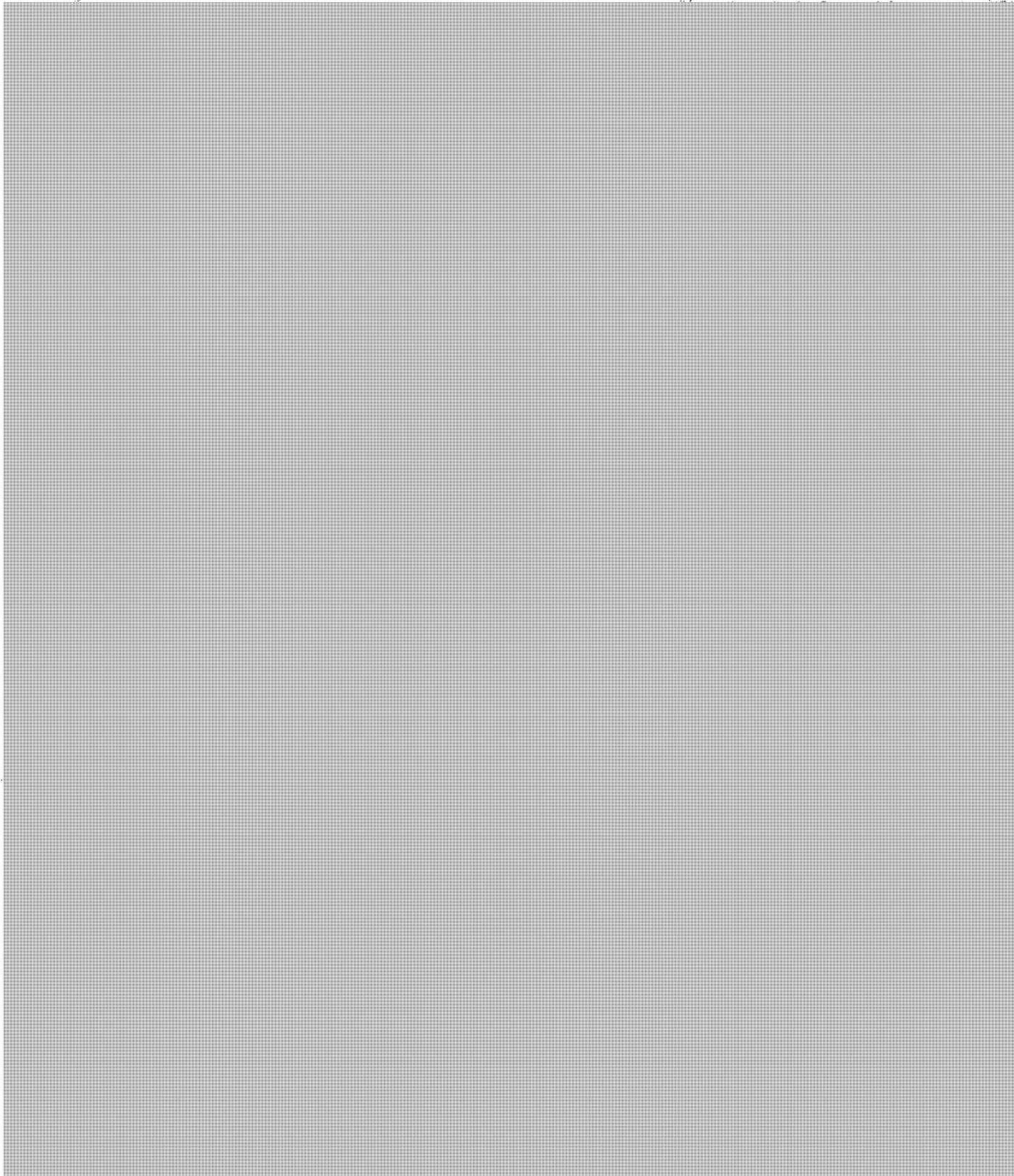
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6. INDIRECT TACTICAL UTILIZATION SUMMARY.



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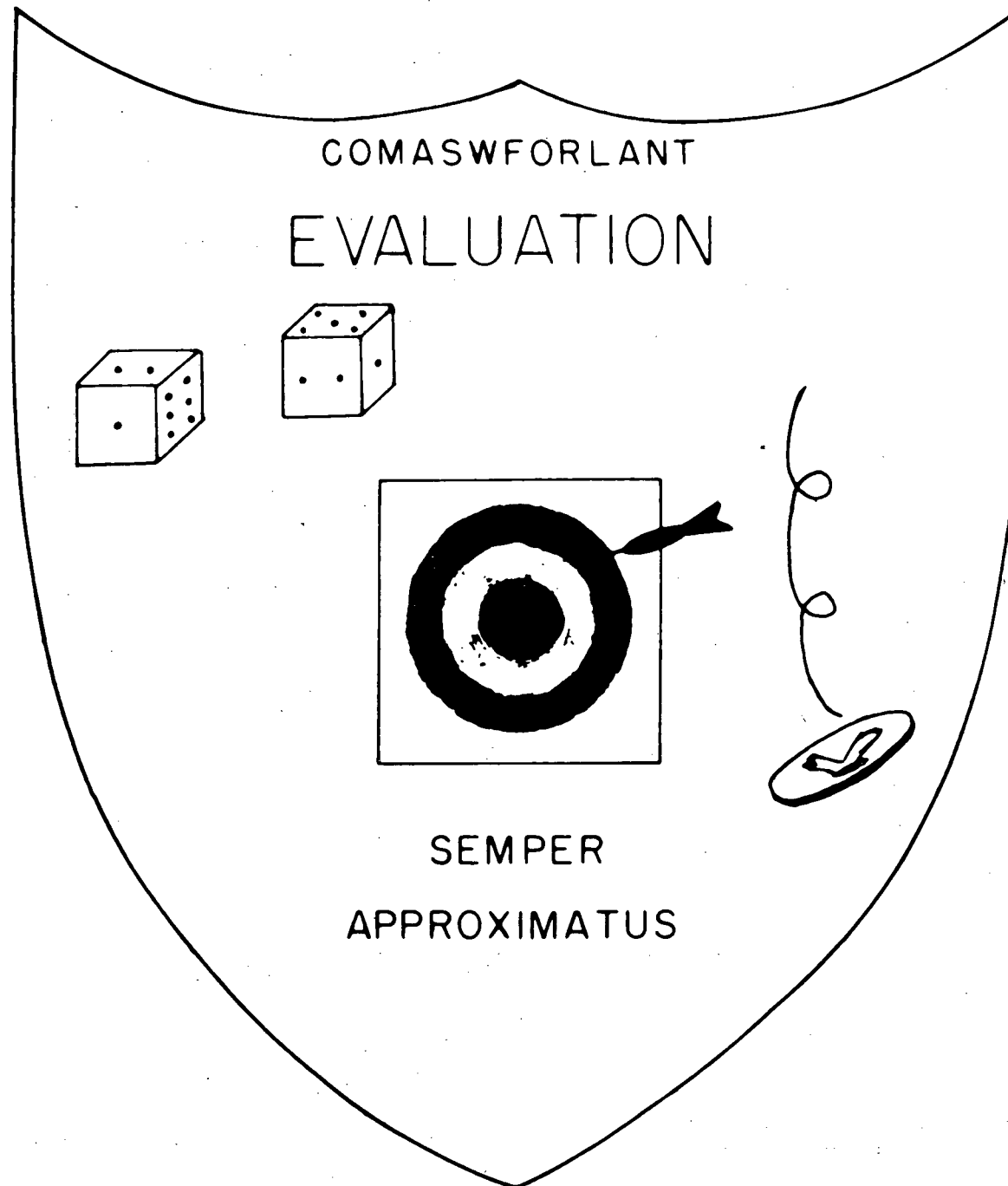
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FF3/81:jlj

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MAJOR COMMENTS AND RECOMMENDATIONS

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C	ADEQUACY OF AIR PLAN
D	SUBMARINE OPERATIONS
E	COMMUNICATIONS
F	EMCON PROCEDURES
G	ASWEPS
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I	INTEGRATION OF AIR RESERVE FORCES

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Enclosure (1)

Section A

GENERAL COMMENTS AND RECOMMENDATIONS

CTG 81.2 COMMENT:

CTG 81.2 considers CAN-US SLAMEX 1-61 to have been a realistic exercise. Forces, areas, weather conditions, etc., were similar to what might be expected during an actual emergency. Operational proficiency during this exercise exceeded that of SLAMEX 7-60 at the Group Headquarters level and the individual air/surface unit level.

COMASWFORLANT COMMENT:

Concur.

CTG 81.2 COMMENT:

Recommend that CANCOMARLANT, COMASWFORLANT, and his Group Commanders make co-ordinated review of all OpOrder and Plans pertaining to Close-in-Defense, with the purpose of issuing a joint OpPlan 201-(yr).

COMASWFORLANT COMMENT:

This measure is in hand.

CTE 81.2.2.0 COMMENT:

The forces likely to be available for employment in the anti-SLAM role on a Simple Alert being declared indicated more A/S units must be found. Possibly re-allocation of forces already in being should be considered.

It is, therefore, suggested that SSKs should be considered as an integral part of the SLAM defenses. Operating defensive submarines in established sanctuaries is not in any way out of line with present concepts.

It is recommended that SSKs be included in the spectrum of defending forces in a future SLAMEX.

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COMDESRON 36 COMMENT:

The use of a DDE-SSK SAU team, though expensive, should be exploited at every opportunity. A communications system between the DDE and a nearby SSK capable of rapid exchanges of tactical data would prove invaluable. This ready-made "VDS" equipped DDE with aircraft support should have a favorable "punch".

CTG 81.9 COMMENT:

Problems of communications and identification must be solved, and further development of doctrine and tactics for incorporating its (the SSK) use is considered necessary.

COMASWFORLANT COMMENT:

Submarines have not been used in the defensive role during SLAMEX, nor is their use envisaged, because:

a. There are not enough exercise submarines available to assign both aggressive and defensive missions to them.

b. The difficulty of operating with other naval forces remains largely unsolved. Even during this exercise, attacks were made upon a non-participating submarine (ETHAN ALLEN) about which a moving haven had been established.

This does not imply that submarines would not be effective if they were available. Submarine barrier exercises are held in the same region as the off-shore waters of the SLAMEX area, and from these the potential value of the submarine in a defense role can be deduced. The narrative of the aggressive submarines during SLAMEX 1-61 indicates that their tactics were based on knowledge that no submarines were a part of the Close-in-Defense forces. A hostile submarine would doubtless be hampered by the additional precautions she would be forced to take if she were uncertain whether or not she might encounter defensive submarines during her approach.

CET 81.2.2.0 COMMENT:

It is recommended that during the next SLAM exercise of this scale all units be instructed not to employ LORAN or DECCA Radio Aids during a stated period of 48 hours, except in extenuating circumstances, such circumstances being recorded in the narrative.

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COMASWFORLANT COMMENT:

The question of operating radio fixing aids during an Alert is being investigated. The substance of this recommendation will be taken into account.

CONCEPTS AND PLANNING

CTG 302.0 COMMENT:

The published recognition of a submarine threat in the area would be sufficient to poise forces for counter-action to a degree likely to cause a potential enemy to reflect before making the vital decision. Nevertheless, the comparative ease with which submarines did surface brings to light the requirement for further careful study and re-appraisal of the present methods of defense.

COMASWFORLANT COMMENT:

Concur that further study and continuous re-appraisal of present methods of defense are required. However, it should be noted that analysis of the exercise has shown that three of the attacking submarines were placed out-of-action by defensive forces before the missile launch.

VALIDITY OF ASSUMPTIONS

CTE 81.2.2.0 COMMENT:

The conduct of the enemy submarine in recent SIAMEX's has appeared to become stereotyped in that launch positions are generally all within very limited submerged transit times from prominent land marks. This is thought to be an unrealistic limitation to place on the exercise submarines. For example, had only one-third of the enemy submarines been instructed to proceed to inshore positions it is likely they would have drawn most of the surface units and the majority of the air support inshore with them. This would leave the deep field relatively clear of opposition for the remainder of the submarines.

COMASWFORLANT COMMENT:

The one submarine that was given a 500 mile missile capability was not detected by investigative forces and was unopposed during the exercise.

Further comment on the selection of launch positions is made in Section D.2.

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COMMAND RELATIONSHIPS

CTG 81.2 COMMENT:

It was apparent that COMASWFORLANT recognized a threat before CTG 81.2. This was caused by the delay in receipt of intelligence information on which to base an evaluation.

RECOMMENDATION:

It is recommended that COMASWFORLANT consider: (1) the feasibility of defining a submarine threat to insure that all commanders are using the same criteria and (2) increase the frequency of intelligence summaries to insure that subordinate commanders have up-to-date information.

COMASWFORLANT COMMENT:

From a review of the intelligence summaries promulgated by this headquarters, it is considered that the simulated intelligence build-up was adequate to have established the submarine threat. From a realistic standpoint, it is likely that in an actual emergency considerably less intelligence will be available.

CTG 81.2 COMMENT:

During SLAMEX, CTU 81.2.1 operated from his headquarters at NAS Brunswick very effectively.

RECOMMENDATION:

That current OpPlans be revised to reflect CTU 81.2.1 remaining at NAS Brunswick.

COMASWFORLANT COMMENT:

Consideration will be given to establishing the Quonset Air ASW Unit Commander at Brunswick, Maine, during the current review of OpPlans.

COMDESDIV 322 COMMENT:

War plans should recognize the complexities of target identification in fishing fleets by either controlling the movements of fishing fleets during times of international danger or by providing escorts for fishing fleets (coastal patrol craft) whose responsibility should be that of accounting for those present and keeping them within a reasonable area.

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COMASWFORLANT COMMENT:

COMOCEANSUBAREA CTF 80 OpPlan 201-60 and OPNAVINST 03450.5 provide for the control and operation of certain fishing and merchant vessels.

CTF 302 COMMENT:

Co-operation between CTF 302 and CTG 81.2 headquarters was considered to be excellent except that all information available to Quonset was not readily apparent to CTF 302. This was particularly true of ships' geographic positions. This was partly alleviated as the exercise progressed by ships in the Canadian area making CTF 302 info addressee on their operational messages.

RECOMMENDATIONS:

More frequent and more comprehensive SITSUMS would have alleviated much of the above mentioned lack of information and would have provided the afloat commanders with additional vital information as well.

COMASWFORLANT COMMENT:

Concur.

COMDESDIV 322 COMMENT:

Umpire rules allowed some confusion in that the flare signals for a torpedo attack and a missile launch were the same. At any appreciable distance from the submarine at night it would be difficult to evaluate which was intended. Umpire rules should also establish a requirement for a surfaced or snorkeling sub to guard a radio circuit on which surface and air units could signal the commencement of attacks. Annex D paragraph 4.a. of reference (a) designated fleet common (277.8 mcs) to be used for this, but no requirement is imposed for exposed subs to guard it. When this element opened fire on USS TORO (SS-422) and reported it to him on Fleet Common, he was unaware of our action.

CO, HMCS BONAVENTURE COMMENT:

It is considered that a shortcoming in the planning was failure to provide an easily recognizable "missile-launch" signal. A considerable number of launches were reported during the exercise but all transpired to be some other phenomena. In any case, they required investigating with the resultant disruption of planned coverage. A signal more representative of the missile trail is recommended.

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COMASWFORLANT COMMENT:

COMASWFORLANT TACNOTE 3-62, (Rules for Engagement and Umpire Procedures for ASW Exercises) which has only recently been published, contains new and improved procedures to be utilized in simulated missile launch. Copies are being forwarded to the Canadian Maritime Commander (Atlantic) for information.

CTG 81.9 COMMENT:

The basic operation order for the exercise was complete and workable in all respects, requiring a minimum of supporting directives and instructions by the subordinate commanders. However, it was voluminous and repetitious to some extent of material already existing. Because of the high state of readiness required of all antisubmarine commands and the existence of numerous publications containing standard tactics and doctrine, it is believed that the participants should have the capability of conducting an exercise such as SIAMEX 1-61 without extensive special guidance from the OCE. As a test of readiness of commands as well as of effectiveness of publications, it is recommended that subsequent exercises be conducted with a minimum of co-ordinating directives.

COMASWFORLANT COMMENT:

Agree in principle. The SIAMEX OpOrder attempted to combine the applicable plans and procedures, and to reduce requirements of CTF 81, CTG 81.2, and CTF 302 into one publication in order to alleviate the requirement for supporting OpOrders. A CANUS type exercise requires an extensive Communications Annex. In addition, there were Reserve forces participating who would not have had available all the various publications required in the conduct of the exercise.

Various measures are being pursued such as COMASWFORLANT TACNOTE 3-62 (Umpire Rules), which will bring about a considerable reduction in the size of future OpOrders and assist in obtaining the ideal exercise in which few co-ordinating directives are necessary.

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Section B

ADEQUACY OF SURFACE PLAN

GENERAL

CTG 81.2 COMMENT:

The defense in depth concept is considered highly desirable during the intelligence gathering phase; however, there were insufficient units available for assignment to the Surface Patrol Element. Each unit covered a front 22-25 miles. If this front area could have been reduced by $\frac{1}{2}$ it would have produced better intelligence results.

RECOMMENDATION:

That the defense in depth concept be continued in future SLAM exercises.

COMASWFORLANT COMMENT:

The disposition of forces in a surface patrol line does not constitute defense in depth nor will the availability of ASW units be likely to permit the concentration of forces needed to support such a concept. The deployment of the HUK Groups to the outer reaches of the area where VP on-station time is limited and the random dispersal of surface units in SAU's throughout the area is considered an optimum initial employment of limited ASW forces pending ultimate concentration of forces in areas of high probability as determined by operational intelligence.

CTF 302 COMMENT:

Ships and aircraft in the same area were operating under different control authorities hindering air and surface co-operation and contact prosecution to an unacceptable degree. Contacts by aircraft were relayed to MHQ which in turn informed QUONSET (Usually by telephone) who then ordered ships to the area of probability. This resulted in considerable dead time and, when communications were lost for an extended period, allowed one submarine to get 24 hours ahead of the surface ships prosecuting the contact.

RECOMMENDATION:

Ships and aircraft operating in any given area should operate under the authority of a single shore based headquarters preferably that of the headquarters operating the aircraft. In the event of ship-shore communications difficulties, reaction time to prosecute contacts can be shortened considerably by using the aircraft as a communication link. This is particularly desirable when the aircraft is in almost constant communication with the shore based headquarters as was true in this exercise.

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COMASWFORLANT COMMENT:

It is considered infeasible to control all forces for the close-in-defense of the Western Atlantic from one central headquarters. In fact, it is COMASWFORLANT's policy to delegate as much control as possible to individual operating commanders, reserving only a guidance function to CTF 81 headquarters. Thus, co-operation between adjacent commanders is essential to success, and co-operation entails communications; co-operation will only be as good as the communication link.

This is not to say that control of operating forces should not be shifted from one commander to another, when the need arises. It should, and perhaps this would have solved the difficulty reported by CTF 302.

COMMAND AND CONTROL

CTF 302 COMMENT:

Rather than commence an exercise with ships in the barrier type alignment, it might be more advantageous to form them into Task Units at the outset and assign them to an area to work in conjunction with MP aircraft.

CTG 302.0 COMMENT:

In the final stages of Phase III, where the area of greatest probability was along the JULIET/KILO border, restriction of TG 302.0 to area KILO, and the control of aircraft in those two areas by dual authorities (CTG 302.0 and CTG 302.2) without sufficient co-ordination, left those areas inadequately covered.

The principle of the close control of a large force at sea by a shore-based Task Force Commander was viewed with interest. In practice, the Task Group Commander was generally permitted sufficient freedom to permit the disposition of the forces under his immediate command to the maximum local advantage. However, as is stated (earlier), it is considered that both CTF 302 and CTG 302.0 suffered from lack of knowledge of the other's appreciation and intentions.

CAP DE LA MADELEINE COMMENT:

Command relationships appeared weak and contradictory. This was solved after some early uncertainty by CAP DE LA MADELEINE taking the initiative locally whenever possible. It is recommended that tactical command should remain exclusively at sea, once enemy submarines have been

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detected and localized . . . shore authorities should limit themselves to providing the contact area commander with maximum useful intelligence, air support, and logistic support.

LA HULLOISE COMMENT:

It is unwise for a shore authority to attempt to dictate tactical orders to those units on the spot. Certainly some orders of a tactical nature are required from time to time. However, in this type of operation advice in the form of up to the minute . . . intelligence would be more useful than detailed tactics.

NEW WATERFORD COMMENT:

It is considered that a brief intelligence summary should be included with each area re-assignment to permit commanding officers or OTC's to more effectively prosecute the datum. It is felt that the absence of such information prevented the maximum exercising of initiative by commanders on the scene.

COMASWFORLANT COMMENT:

The foregoing remarks indicate a need to review the principles of command and control as they apply to operations against missile-launching submarines:

Co-ordination of the overall effort can be accomplished effectively only from a position where information from all sources, and communications with all forces are available. This means that command must be exercised from shore headquarters. This type of centralized control of operating forces can be exercised to bring forces to bear where the threat appears to be, but once forces are ordered to prosecute a particular contact, then command of the search effort may be passed to a designated officer on the scene. This is consistent with the principles of war and places the initiative clearly where it belongs. When it is decided to initiate a search the shore headquarters should indicate the location and size of the area, the forces assigned and the identity of the Contact Area Commander, as well as explanatory information and an assessment of the situation. When the search is terminated, the forces revert to their former mission and to the positive control of the headquarters.

This does not diminish the importance of individual initiative. Commanding Officers should always be prepared to initiate an action with a "UNODIR", or for Canadian forces, an "INTEND" message. A knowledge of the intentions of other commanders and their estimate of the situation gives the over-all commander the information he needs to stay ahead of events and to plan effectively.

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Control of the operating forces during CANUS SLAMEX 1-61 was accomplished effectively and expeditiously. For the first time adjacent ASW Group Commanders completely co-ordinate their operations, and the result was a distinct success.

It is understood that CANCOMARLANT is preparing explicit plans for the ordering and conduct of contact investigations and datum searches and for the control of patrol forces. These will be studied with interest when they become available.

CTE 81.2.2.0 COMMENT:

A squadron commander, embarked with his staff, could be employed to advantage as a stand-by secondary command center for patrol group ships.

COMASWFORLANT COMMENT:

Concur.

EMPLOYMENT OF SURFACE FORCES

COMDESRON 36 COMMENT:

Two ship SAU's reduce the effective coverage considerably, however, this problem must be weighed against the likelihood of a torpedoed destroyer. The tactical situation will govern. The submarine clearly has the advantage over a single destroyer.

COMASWFORLANT COMMENT:

Concur with this remark as a statement of broad principle. Factors bearing on the decision are: The presence of aircraft, the sonar and weapons systems of the destroyer, and water conditions. On balance, it is considered better to operate destroyers in pairs, close enough for mutual support.

SHIP/AIRCRAFT CO-ORDINATION

CTF 302 COMMENT:

Aircraft arriving in a contact area were not aware of the specific ships working in the area, nor which ship had been designated OTC.

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COMASWFORLANT COMMENT:

This remark by CTF 302 should be read in conjunction with his remark in Section, on B.2. COMMAND AND CONTROL. The advantages of a stable organization are acknowledged, and any plan which furthers this end should be supported. However, this could be accomplished without any loss of flexibility by avoiding too rigid a briefing before take-off, greater emphasis on the regular day-to-day practice of joining procedures, and more use of the Rainbow Form YELLOW.

USS STRONG COMMENT:

For future exercises it is recommended that again certain surface units be designated as area guard ships but that all aircraft assigned search in that area be required to check in with those ships. In this manner guard ships will be required to make on-and-off task reports for aircraft and also assume their flight safety guard while the aircraft are on station. This will relieve the aircraft of "Ops Normal" reports and also enable surface units to have positive communications with support aircraft for rapid assistance and employment.

USS RICH COMMENT:

... a great deal of aircraft search activity was noted, but apparently little co-ordinated effort existed, since the same contacts were being re-investigated several times by various aircraft during a period of a few hours. It is recommended that where destroyers are stationed within operating range of shore-based aircraft, the air control and plotting facilities of the destroyers be used to the utmost to assist the aircraft in searching their areas.

COMASWFORLANT COMMENT:

Close co-ordination between aircraft and ships is most important. The use of destroyers as area guard ships for the shore-based VS aircraft (USN) was quite successful and will be continued, with emphasis on the correction of weaknesses reported during this exercise.

The practice of establishing a number of different "missions" for aircraft sorties has met with success on each occasion when it has been tried. On receipt of the mission number all forces know exactly what the aircraft is to do and who is controlling it.

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USS BASILONE COMMENT:

Recommend that commanders vectoring aircraft to ships for searches send complete survey for the aircraft or else indicate that it is desired that the controlling ship formulate a survey.

COMASWFORLANT COMMENT:

Wider use of Form YELLOW would prevent misunderstanding.

CTG 81.9 COMMENT:

Recommend that the Carrier Task Group Commander be an information addressee on Form BROWNs for all aircraft assigned to operate in areas adjacent to the CVS.

Recommend that VP aircraft establish communications with the CVS when operating in areas adjacent to the CVS.

COMASWFORLANT COMMENT:

Concur.

CTG 81.9 COMMENT:

The use of "Black IFF" for controlling aircraft during periods of darkness or low visibility is a dangerous practice which could lead to a mid-air collision. There is always the possibility of aircraft in the area not equipped with IFF or with inoperative IFF. In this case, the controller will not be aware of this aircraft's presence when using "Black IFF" for controlling aircraft.

USS HOLDER COMMENT:

Investigation of contacts by aircraft outside their area causes an interference hazard. "Black IFF" if used at that time can be dangerous.

COMASWFORLANT COMMENT:

Concur.

USS MALOY COMMENT:

Darken ship policy varied considerably between on scene commanders.

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RECOMMENDATION:

Provide a standard darken ship policy for the exercise.

COMASWFORLANT COMMENT:

The operation order stated that participating forces were to approach wartime conditions as closely as possible. As ATP-1 (and ATP1(A)) Article 591-596 contain wartime cruising precautions, including darkening ships, this general statement should have sufficed.

However, the importance of darkening ship, even when radio, radar, and sonar may be operating, is perhaps not entirely understood. A darkened ship presents a most difficult target to a submarine, and the display of light by the surface ship may well make the difference between being hit and not. Moreover, by enabling the submarine to make a rapid appraisal of the surface situation it makes it easier for her to break contact and to determine the best escape course.

MODIFICATIONS TO SURFACE PLAN

COMDESDIV 362 COMMENT:

The surface plan might have been adjusted to provide a few additional units in the advanced area, i.e., those areas under Argus or VP surveillance, to assist these aircraft in classification, attack and navigation as the requirement arose.

This need was shown by the large number of attacks conducted by the Argus and P2V aircraft without verification of the contact. An active sonar on the scene might have provided sure kills of these submarines before they penetrated into our waters.

CTG 81.9 COMMENT:

Assignment of surface units to stations in the advanced area could only have been accomplished at the price of weakening the forces in the primary intercept area. In view of the distances involved and the number of units that could be made available in the advanced area, it is not considered that a further dispersion of forces would be justified.

COMASWFORLANT COMMENT:

No area should be ignored completely during an alert phase. Forces including surface units, must be dispersed throughout the contact area. In addition, some surface representation is necessary in the outer reaches as long as operational intelligence indicates the enemy has not passed through.

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Section C

ADEQUACY OF AIR PLAN

EMPLOYMENT OF HUNTER KILLER GROUPS

CG 81.9 COMMENTS:

The overall air plan for CANUS SIAMEX appeared to be well conceived and executed. The outer belt of the defense perimeter consisting of JULIE/JEZEBEL P2Vs backed up by the two carrier groups and linked together with non-JULIE P2Vs lent the overall defense-in-depth concept a high degree of flexibility, especially during the first three phases of this exercise.

The mobility of the carrier task group coupled with the radar surveillance and JEZEBEL capability of P2V aircraft, proved to be well suited for the exercise area and provided a force easily maneuvered by Command Headquarters ashore.

The defense-in-depth concept around which this exercise was tailored, required a compression of forces in the latter stage of Phase III. From a local viewpoint, it appeared that the movement of forces toward the inner defensive areas got behind the advance of the opposing submarines.

In Phases II and III, the primary objective was "hold-down" during which CG 81.9 maintained four S2Fs and 1 AD on station continuously, except when flight operations were curtailed due to weather. Each aircraft was assigned to cover approximately a fifty-mile square area. Utilizing random searches and continuous or intermittent radar operations over an extended period of time, satisfactory air coverage was realized for the area. However, when detection became the primary objective, as in Phase IV, the area was too large for effective air radar coverage with reasonable probability of detection.

RECOMMENDATIONS:

When detection is of primary importance, concentrate air searches in areas of high probability.

HAIDA COMMENT:

The use of the carrier groups, and in particular CG 302.0, in this exercise seemed to negate their enormous value in ASW. They had been used in prescribed areas as a kind of extension of the patrol destroyers

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and MP aircraft. Their aircraft were used in a shore based role and the potential of the platform was disregarded. It appeared TG 302.0 was restricted to areas ROMEO, KILO and JULIET when the majority of the actions were taking place to the westward. The repositioning of forces when the tactical situation altered would appear to have been a more prudent method of employment.

CO, VS-380 MAY 1 COMMENT:

It is obvious that the ASW Carrier Group with the unique weight of arms it can bring to bear on enemy missile firing submarines (i.e. fixed wing aircraft, ASW helicopters and surface attack units) can perhaps make the greatest contribution to the Area type of defense used in "SLAMEX"; however, for this contribution to be successful it is essential that the carrier groups be employed in the areas of highest submarine probability. Although post exercise analysis may prove it otherwise, the question is raised as to whether or not in BONAVENTURE's case pre-exercise planning attempted to ensure this.

COMASWFORLANT COMMENT:

The integration of a CVS into SLAM defensive forces is not without its difficulties. It is not desired to hamper the mobility of the carriers, but their movements must be co-ordinated with the operation of aircraft and ships in adjacent areas. Close co-ordination is also required to maintain continuity of air cover when weather is a limiting condition. The CVS should be accorded as much latitude as possible, but must operate as directed within the overall framework. It is considered a more effective utilization of the HUK group capabilities to employ this group initially to provide an extension of the over-all air surveillance necessary to make SOSUS effective. Once contact is gained, then concentration of forces should be brought to bear in the areas of probability generated.

SOSUS has a greater capability than aircraft for detecting snorkeling submarines, but normally aircraft have a greater capability for detecting surfaced submarines. Thus, VP and VS aircraft will be utilized to cover the largest possible area to:

- a. keep submarines from charging on the surface,
- b. detect those submarines which do try to charge on the surface, and
- c. detect submarines in any state (surfaced, snorkeling, or submerged) in co-ordination with SOSUS or in high probability areas. Of course, snorkels or other mast exposures may be detected by aircraft in independent area search, and every effort should be made to do so; but the search plans and

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tactics used by aircraft should be designed to detect the surfaced submarine when conducting a general area search. In this way aircraft and SOSUS complement each other and the greater capabilities of each are exploited.

During the Alert and Reinforced Alert stages of an attack, the enemy will rely heavily on stealth, and risk of attack on the CVS before the launch of missiles is relatively small. Some of the destroyers could be deployed as SAUs (within recall distance) to extend the effectiveness of the group.

CVSG-52 COMMENT:

The air plans employed insured short revisit times and intensive air coverage. Because of the frequent diversions to investigate surface contacts and the close proximity and limited size of search areas, aircraft navigation posed problems and some element of danger in the low visibility conditions encountered. Positive control of aircraft by assigned surface units is considered highly desirable under such conditions. Air control was considered excellent during this exercise.

CTG 81.9 COMMENT:

During periods of low visibility air controllers must maintain aircraft under monitor control and insure that aircraft remain within assigned search areas. If air controllers are unable to maintain monitor control in low visibility conditions aircraft must fly at their assigned IFR altitudes.

COMASWFORLANT COMMENT:

Concur.

CTG 81.2 COMMENT:

The air plan was excellent. The large numbers of air forces employed created certain "safety of aircraft" problems. It is considered that "sub areas" are much more compatible to large numbers of aircraft than predesignated tracks currently contained in existing OPORDERS and Plans.

RECOMMENDATION:

That existing OP Plans be revised to include "sub areas".

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COMASWFORLANT COMMENT:

Concur that "sub area" assignment were utilized with good success and little difficulty during the exercise. Variation in altitude assignments in going to and from the assigned areas adequately provided for safety of flight.

ADEQUACY OF EXISTING EQUIPMENT

USS BASILONE COMMENT:

The S2F-1 aircraft does not seem to be highly effective in the SIAM problem because of relatively short endurance, lack of JEZEBEL capability, inadequate radar and ECM facilities, and limited JULIE capability. During the submarine transit to the launch area, this aircraft has only its radar, which has a low probability of detection, to detect the submarine snorkel. When the submarine on station, slow, quiet, comes up to launch missiles, then it is too late.

RECOMMENDATION:

Accelerate production and distribute the more advanced ASW aircraft such as the S2F-3 and P3V and HSS-2.

CTG 81.9 COMMENT:

Concur with comment and recommendation of C.O., USS BASILONE. The operational need for new and advanced ASW aircraft is well recognized. With the introduction of the S2F-3 and the HSS-2 into operational use, the effectiveness of Carrier ASW has increased immeasurably. Similarly, the P3V is expected to considerably improve the capability of land based ASW aircraft.

COMASWFORLANT COMMENT:

Scarcity of aircraft make it essential that we utilize all available aircraft to the best advantage obtainable. For example, the S2F-1 is most useful for close in search to detect and harass submarines during periods of high launch probability. In addition, a plan has been approved to provide S2Fs with a 150 gallon torpedo bay gasoline tank thereby extending time on station an additional two hours with only a nominal reduction in the ordnance load.

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CTE 81.2.2.5 COMMENT:

Air coverage of area ALFA by shore-based squadrons. Surface units in this area generally had little or no information early in the exercise as to the aircraft's instructions, search plan in effect, or location. CTE 81.2.2.5 received only two GREEN reports, the latest of these being GREEN 202, December 7.

The precedence given to form YELLOW was not sufficiently high to insure delivery to this action addressee prior to departure of the aircraft from the exercise area. Six of the seven form YELLOWS arrived between 1 and 10 hours after the A/C had been off-station.

RECOMMENDATION:

It is recommended that Forms GREEN and YELLOW be given priority dissemination to surface units operating in their assigned areas.

COMASWFORLANT COMMENT:

If all messages have a higher precedence, then none have any precedence in actuality. Although these messages are important, they must be weighed against the importance of contact and amplifying reports in the higher precedence bracket. Direct communications, when the circuit is clear, between the aircraft and the surface unit after the aircraft arrives on station may provide for the immediate need for information. (See further comments under SHIP/AIRCRAFT CO-ORDINATION previously covered).

USS R.L. WILSON COMMENT:

It is recommended that in future exercises a secondary air plan utilizing all-weather land-based ASW aircraft be effected and integrated into the primary air plan once the weather commences to deteriorate in order that air coverage will continue when carrier-based planes are unable to operate.

COMASWFORLANT COMMENT:

Although this type of air coverage was effected at various times during the exercise, its co-ordination was not as smoothly carried out as it might have been, had there been the positive understanding that it was to be utilized during periods of unusually poor weather affecting safety of flight when CVS operations must be suspended. Future operation orders will stress the requirement that VP air coverage, if available, will be ordered into areas left unpatrolled by the advent of severe weather cancelling CVS flight operations.

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CTG 81.9 COMMENT:

The lack of information as to aircraft operating in adjacent areas became a matter of concern to the Task Group Commander from the viewpoint of safety of flight. Rainbow Forms BROWN were received only sporadically, and a reliable status of aircraft in contiguous areas could not be kept current.

RECOMMENDATION:

That the Carrier Task Group Commander be an information addressee on Forms BROWN for all aircraft assigned to operate in areas adjacent to CVS.

That VP aircraft establish communications with the CVS when operating in areas adjacent to the CVS.

COMASWFORLANT COMMENT:

Concur. This is considered a "Safety of Flight" matter. VP A/C must be briefed prior to mission by the VP Wing or Squadron Commander on other units operating in adjacent areas.

CTF 302 COMMENT:

In view of the intelligence available to the shore based headquarters, the air plans devised were adequate to exploit SOSUS information and to permit ship/air co-operation. Difficulties encountered during Phase III which resulted in a loss of coverage for a period of time in area KILO were caused by an incomplete two way flow of information between CTF 302 and CTG 302.0, as to future intentions.

RECOMMENDATION:

SITSUMS should be promulgated by both shore-based and afloat commanders at least every six hours. These should include future intentions of the commander as well as a recapitulation of past events during the reporting period. This would facilitate the development of valid tactical decisions by all commands.

COMASWFORLANT COMMENT:

Concur.

CTF 302 COMMENT:

Air search plans were promulgated with the normal Form GREEN by CTF 302 and CTG 81.2; hence when the tactical situation altered, a new form

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GREEN had to be issued. Unfortunately, these changes often arrived at the air base after the aircrew had been briefed and, at times, even after the aircraft was airborne. This method proved slow and cumbersome and at times resulted in confusion as to area to be searched, mission of aircraft, and accuracy of tactical information. This was partially overcome at Maritime Headquarters by direct telephone conversations between MHQ operations Watch Officer and the M/P aircraft squadron briefing teams or by direct voice contact with the aircraft in the air.

RECOMMENDATION:

In view of the possible sabotage and/or poor security of telephone/RT circuits, a shorter, more easily understood method should be devised and tested to alert air crews as to changes desired in their operational missions. This method should include provision for utilization of coded voice, teletype, and CW circuits. In addition, aircrews should be briefed prior to take off on the general situation in other areas in which they might operate, as the tactical situation or equipment unserviceabilities will often dictate changes in their deployment.

COMASWFORLANT COMMENT:

It is understood that KW-7 (RAIT) equipment, now in development and expected to become available within the next year, will fulfill most of the requirements recommended above. The use of plain language mission codes has also proved highly effective in the Jacksonville (CTG 81.4) area.

GENERAL COMMENTS:

The following comments were made by participating units concerning the air phase of the exercise. The comments are included as matters of general interest.

CTU 81.9.1 COMMENT:

Aircraft operated IFR under DD control during much of the exercise. Surface-air co-ordination was generally outstanding as exemplified during the successful prosecution of USS BLENNY.

CTG 302.0 COMMENTS:

The V/S aircrews of Task Group 302.0 probably gained most from the exercise in the carrying out of patrols under adverse weather conditions.

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Contact with the "enemy" would have given the crews a boost in morale which may have suffered from operating in this their second recent major exercise with negative results. Lack of suitable radar and ECM equipment in the CS2F contributed to a marked degree to their failure to make contact.

The aircraft employed by CTG 302.0 were adequate to provide constant coverage of the Task Group Patrol Areas. However, during the operations in areas Juliet and Kilo, in the latter part of Phase III, the dual control of shore-based M/P and V/S aircraft and carrier-borne V/S aircraft, the failure to establish ship/air communications, and the requirement for area separation of aircraft led to the areas being inadequately covered for some hours.

OIC DST 48 COMMENT:

Utilization of the AD5W aircraft during this operation was considered to be exceptionally well planned. By assigning a random search, the aircraft was able to survey the area and then proceed to that portion which showed the most activity without being hampered by definite boundaries imposed by fixed searchplans. A random search plan also relieves the load on the communication nets by eliminating transmissions required to request permission to leave an assigned survey.

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Section D

SUBMARINE OPERATIONS

GENERAL

COMSUBRON TWO

RECOMMENDATION: In order to enhance intelligence reality it is considered advisable, in the future, for submarines to check out of the movement report system upon departure from port rather than arrival at the exercise area.

COMASWFORLANT COMMENT:

Concur. Unfortunately, CANUS-SIAMEX defense forces were able to obtain the initial positions of submarines by decoding submarine movement reports. This, of course, provided them more intelligence than could be realistically hoped for. In future Exercise Operation Orders COMASWFORLANT will, when conditions permit, give the Submarine Task Group Commander the option of having his submarines check out of the movement report system earlier.

COMSUBRON TWO

RECOMMENDATION: Launch points were selected off well-defined and well-charted navigational aids. The reasoning process that leads towards the selection of these points is available to both the enemy and defensive forces. It is possible that an enemy planning for a war launch would deliberately avoid well charted and known points, relying instead on clandestine support and possibly including temporary navigational aids of beacons. It is recommended that this concept of the submarine attack plan be evaluated in a subsequent exercise.

COMASWFORLANT COMMENT:

COMASWFORLANT OPORD 12-61 gave little latitude for those submarines which had no simulated inertial navigation system. These submarines were required to position themselves by terrestrial navigation fix or accurate celestial fix combined with definite bottom contours. Weather conditions did not permit celestial navigation. Some of the defense force commanders stated during the CANUS-SIAMEX critique that they concentrated search efforts in the latter part of the exercise in those areas where prominent navigational aids were available and depth of water

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was suitable for submarine operations. COMASWFORLANT concurs with the recommendation, and in future SLAMEX Exercise Operations Orders, launch navigation requirements for submarines will be specified which permit the Submarine Task Group Commander a greater freedom in selecting launch positions.

USS NAUTILUS (SSN-571)

RECOMMENDATION: To be even more realistic I believe that nuclear submarines in an exercise of this type should be assigned areas and transits so as to enable them to run in at moderately high speed, shoot quickly and depart. Time spent in a sensitive area should be held to a minimum.

COMASWFORLANT COMMENT:

It is very possible that under actual combat circumstances nuclear submarines would be so employed. However, during SLAMEXs a compromise must be accepted that will permit maximum training for both submarines and defense forces without unduly affecting realism. NAUTILUS was, therefore, required to remain within a "sensitive area" in order to increase the possibility for interplay which would result in valuable ASW training for defense units.

USS ELENY (SS-324)

RECOMMENDATION: At one time while we were OA, a Canadian destroyer was watching us from a distance of about 5 miles. The duration of OA was about 6 hours. It is felt that this time could have been put to constructive use in several ways:

The Operation order could provide for an OA unit to conduct attack and evasion exercises with a nearby unit for a stated time period.

The duration of OA period could be specified in the operation order, allowing enough time for units to open from each other, and resuming of exercise status automatically. It is believed that such an arrangement would serve to gain maximum training benefit for all participants during an exercise of this nature.

COMASWFORLANT COMMENT:

COMASWFORLANT concurs that interplay between a submarine and nearby ASW units immediately after a submarine is placed OA would be beneficial.

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Careful consideration in future Exercise OPORDS will be given to permitting a one-hour period for such ASW training. COMASWFORLANT TACNOTE 3-62 (Rules for Engagement and Umpire Procedures for ASW Exercises) will be referred to in future Exercise OPORDS. A definite four-hour OA period is specified in this TACNOTE unless otherwise changed by the OCE.

USS SAILFISH (SS-572)

RECOMMENDATION: If aircraft radars do not periodically shift to sector scan it is recommended they do so for this is an ominous report by a submarine EUM operator and was a significant factor in SAILFISH's decision to secure snorkeling and take evasive action. If the object is to limit submarine snorkel time, then the periodic shifting of aircraft radars to sector scan is effective. However, for submarine detection, better results will be obtained by remaining, if possible, in normal search until solid contact is made, shifting to sector scan only for the attack.

COMASWFORLANT COMMENT:

Under most conditions, SOSUS provides the most effective detection capability against submarines that can be kept from coming in on the surface while aircraft provide the most effective capability against surfaced submarines. Consequently, primary aircraft search policy should be directed towards maximum detection of surfaced submarines with a secondary purpose of detecting snorkeling submarines. A datum search or investigation of a SOSUS contact, however, should continue to emphasize the search for snorkel or periscope and mast exposures. This policy is not intended to imply that most submarines will attempt a covert approach on the surface; rather, it is intended to provide the maximum overall likelihood of detection of submarines regardless of the tactics they may choose to employ. Whenever sector scan is suitable for the above objectives, its use should be considered.

GENERAL COMMENTS BY COMASWFORLANT

Submarine operations during this exercise proved once again that defense forces must be alert in order to detect surfaced submarines. Some of the exercise submarines, including snorklers, elected to conduct several high speed surface runs. One submarine remained on the surface for a total of 5 hours 10 minutes in order to effect repairs. Another elected to run surfaced with navigation lights on hoping to be mistaken for a trawler. Evidently she was successful since an aircraft was in her vicinity for a period of time and gave no indication of detecting the

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surfaced submarine. Adverse weather helped to make surface operations ideal at times; however, the conditions prevailing in the exercise area were not unusual. Therefore, defense forces must be alert for surfaced transitors in order to increase the likelihood of detecting these submarines while on the surface and force them to remain submerged and therefore more susceptible to SOSUS detection when snorkel charging.

Some aircraft relied on visual and ECM search during periods of low visibility and high sea state. The mutual support offered between VP and SOSUS is preeminent when the aircraft uses radar (whether intermittent, side-scanning, or continuous) for the following reasons:

The submarine is likely to surface charge to minimize detection by SOSUS and JEZEBEL.

The VP can most effectively deter a submarine from surface operations by harassing the submarine with closely spaced ECM signals.

The VP can most effectively detect a surfaced submarine under most conditions by judicious use of radar.

One submarine took advantage of a trawler to screen his snorkeling. This submarine snorkeled around the trawler for several hours without being detected despite the fact that visibility was excellent. Surface ships, particularly those diesel powered, offer excellent camouflage for submarines, and defense forces should be alert to detect submarines using such ships to mask snorkel noises.

Aircraft searches must not develop a pattern. One submarine was able during part of the exercise to predict accurately when the next aircraft would appear. Air search effectiveness is increased when schedules, as well as method of search, are unpredictable.

During the entire exercise the VLF component of the "WS" broadcast was not used due to maintenance. This negated the submarines' ability to copy submerged and forced them to come to high periscope depth to get an antenna well clear.

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Section E

COMMUNICATIONS

PREAMBLE

Valid comments and recommendations concerning communications have been received from almost every CANUS SIAMEX unit; the amount of information thus made available constituted more than a mere sampling, a fact which should confer more weight to the conclusions to be derived from its study.

The abundance of material dictated the following policy with regards to literal quotations from reports:

Whenever almost identical comments have been submitted by various units only those of one unit are quoted.

Where unanimity is lacking comments typical of the extreme points of view are quoted together with a breakdown of the units generally supporting one or the other solution.

Comments clearly intended for subordinate commanders or, occasionally, for national commanders are quoted when their subject matter is considered to be of interest for all participants.

Certain items of information made available in the nature of comments by senior commanders are deemed to constitute a full answer to comments or recommendations submitted by subordinate commands, who will not therefore see their suggestions commented upon, and perhaps not even reproduced here; however all comments and recommendations have been considered.

CIRCUIT PERFORMANCE

Circuit Y-1 (NEX)

CTF 302 COMMENT:

Off-line encryption and NEX routing between USN authorities and Halifax introduced the most serious delays in exercise traffic. Messages from NAS New York were subject to delays of as great as 12-14 hours. In the interests of providing a better standard of traffic handling, even though not in strict accordance with communication procedures, greater use should have been made of the point-to-point facilities, Norfolk - Halifax, Quonset - Halifax, Washington - Albro Lake. It is realized that such routing would have involved a manual transfer of messages between communications facilities (e.g. between message centres and crypto centres), but it would have provided a much accelerated delivery system.

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COMASWFORLANT COMMENT:

Concur. On 8 December NAVCOMMSTA Washington was requested to pass traffic to CANCOMARLANT via off-line TTY (Circuit Y-9) between NAVCOMMSTA Washington and NAVRADSTA Albro Lake. This reduced delivery by several hours. Consideration will be given to the use of point-to-point circuits in future exercises in order to increase speed of delivery.

It is interesting to note that with the exception of traffic addressed to Canadian authorities, and in spite of some possible procedural malpractices, the NIX performed extremely well. (See graph number 1). The fact that Operational Immediate messages were generally being cleared faster than Emergency messages would tend to indicate that the flow of "taped" Operational Immediate messages may not have been interrupted in order to clear the higher precedence messages, contrary to established procedure.

CIRCUIT Y-2 (NAVOPNET)

CTF 302 COMMENT:

Torn-tape entry of East Coast (CANCOMARLANT) RCN authorities into the USN NAVOPNET is a most urgent requirement.

CTG 81.2 COMMENT:

The NAVOPNET was saturated throughout most of the exercise. By the second day of the exercise NAS Brunswick, NAS Quonset, NAS South Weymouth, NAS New York and NAS Lakehurst were on a common NAVOPNET loop serviced by Newport. For two days Newport attempted to operate this circuit in a high or cypher position to save the time of making sets and resending the same message by a separate transmission to each station. Although operating the circuit in a continual high position for all stations saves time, this procedure did not prove reliable because of the minor equipment problems experienced at the new stations on the net causing the set to break. Also, the procedures involved for making hourly comparison of message numbers was unfamiliar to the operators. NAVCOMMSTA Newport handled 3,300 SLAMEX messages received or transmitted over circuit Y-2 and 540 in a 24-hour period. Since this circuit has shown that it can handle a large volume of traffic, it is not reasonable at this time to recommend the establishment of a separate air station secure teletype circuit.

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COMASWFORLANT COMMENT:

Graph number 2 shows that "all was not well" on the NAVOPNET. The NEX which had to cope with some OFF-LINE encrypted traffic (hence delays at the originating station) did significantly better (See curve number 1). It is appreciated that the AUTOMATIC SWITCHING system of the NEX is much faster than the MANUAL TRANSFERS required on the NAVOPNET, but it is felt that adequate training by the NAVOPNET users should narrow the gap appreciably. The curves studied for this comparison only cover CIRCUIT TIME, and considering the delays that can be encountered at the ADDRESSEE STATION, particularly if Crypto Center has a back log, one realizes that the NAVOPNET may still have provided a faster handling system overall. Such a comparison - to attempt an assessment of overall communications efficiency - will be made after all the data now available on IHM cards has been fully processed, a task which could not be terminated in time to appear in this report.

COMFAIRQUONSET convened a conference on 9 January in order to deal with the procedural and other difficulties encountered during the exercise - - it is understood that these have been resolved.

As for CTF 302's stated requirement for a TORN-TOPE entry into the USN NAVOPNET, CNO's Op-942R/ht ser 09238F94 of 6 February 1962 to the Naval Member Canadian Joint Staff, extract of which is reproduced hereunder, is deemed to provide a satisfactory answer:

"It is proposed that a half-duplex, 60 word per minute, PYTHON covered circuit be established between Canadian Maritime Commander Atlantic (CANCOMARLANT) and Commander Fleet Air Quonset (COMFAIRQUONSET). PYTHON equipment and keying material will be provided to CANCOMARLANT and COMFAIRQUONSET by CNO. 1 June 1962 is proposed as the activation date for this circuit."

CIRCUIT Y-3 (ASW GROUP COMMANDER'S NET)

COMASWFORLANT COMMENT:

Because of the poor performance of the LANIFLT ASW NET (Y-15), CTG 81.9 was almost never in a position to clear his traffic ON-LINE to this Headquarters for relay to CTG 81.2 in Quonset via Y-3, also an ON-LINE circuit; this unfortunate circumstance created a heavy additional burden of cryptography, in itself a cause of delays, plus the fact that it had to be cleared via common-user, ship/shore circuits which is also

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a slower means. Thus the handling capability of the ASW Group Commanders net was virtually unexploited. The day-to-day performance of this circuit is such that it can be safely assumed it would be adequate even during peak exercise conditions. (See Graph number 3).

CIRCUIT Y-5 (ASW HOTLINE TELEPHONE)

CTF 302 COMMENT:

The exercise speech circuit between Halifax and Norfolk was invaluable (This is not a designated Y circuit but a temporary, leased circuit: GP 1971). There was considerable difficulty with the telephone line (Y-5) to Quonset with its intermediate switchboard patch at Brunswick and at times this line was completely unusable. Telephone messages for Quonset were then passed to the Brunswick operations centre and subsequently relayed to Quonset when the line was available. Every effort will be made to complete the installation of the selective ringing and dialling equipment required to give MHQ a more effective capability on this circuit.

CTG 81.2 COMMENT:

It is recommended that future exercise planning include both ON-LINE and HOT LINE between CTF 302 and CTG 81.2. Further, that consideration be given to the installation of a permanent ON-LINE capability between CTF 302 and CTG 81.2.

COMASWFORLANT COMMENT:

The NORFOLK/HALIFAX speech circuit (Exercise ASW HOT LINE) handled effectively some high urgency matters, often preceding a follow-up message on the same subject. Approximately 100 calls were made. A channel of communications of this type (standard long-distance telephone could be considered under certain conditions) is certainly desirable. It is only too easy, however, to pass on this INSECURE channel, in the CLEAR, CONFIDENTIAL and occasionally SECRET information. Commands making use of this facility must establish workable yet effective SECURITY SAFEGUARDS. It is intended that in future, the traffic carried on this circuit will be tape recorded at this Headquarters; in addition all stations should keep at least a "subject matter" log summarizing the ACTION involved in the conversation.

With respect to CTG 81.2's recommendations, it is now established that the permanent ON-LINE circuit will be activated on or about 1 May 1962.

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Also pertaining to CTG 81.2's recommendations, the renting of a specially leased ASW HOT LINE for the duration of the exercise seems difficult to justify. Enforcement of MINIMIZE conditions on the regular ASW HOT LINE (Brunswick patch) would expedite the traffic flow, and as for the few remaining matters that would have to be dealt with as a matter of great urgency, it would undoubtedly be cheaper to handle them via long distance telephone calls.

As a final consideration, however, it is apparent that the Brunswick patch is not a very satisfactory arrangement to link CANCOMARLANT effectively with the rest of the regular, operational ASW HOT LINE members involved in the day-to-day ASW business. CNO is currently investigating the possibility of having CANCOMARLANT join the HOT LINE direct, vice via Brunswick patch.

CIRCUIT Y-6 (HALIFAX-QUONSET ON-LINE TTY)

CTF 302 COMMENT:

This circuit suffered from several line and equipment failures.

CTG 81.2 COMMENT:

Circuit Y-6 was extremely useful for close co-ordination with CTF 302, much more traffic was sent to CTF 302 than was received from him because of the traffic CTG 81.2 had for the LR Broadcast.

COMASWFORLANT COMMENT:

This circuit served its purpose quite well, even though the physical arrangement of the circuit terminals at CTG 81.2 Headquarters prevented maximum flexibility in the relaying capability to and from CTF 302. This reduced capability would not normally apply in future operations, as it was caused this time by non-receipt of the TTY equipment ordered for this circuit compelling CTG 81.2 to resort to a less satisfactory jury-rig. (In spite of these difficulties, the handling times achieved on this FUNCTIONAL circuit were as expected, significantly better than on the COMMON USER Circuits. (Compare graph number 4 to graphs number 1 and number 2).

In any event, as of May 1962 the TORN-TAPE entry into the USN NAVOPNET via Quonset by means of a full-duplex, 60 words PYTHON covered circuit should fully satisfy the co-ordination required between CANCOMARLANT and COMFAIRQUONSET.

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CIRCUIT Y-11; Y-12 (LIMA ROMEO AND NOVEMBER ROMEO JASON RESPECTIVELY)

COMASWFORLANT COMMENT:

Delivery times of Operational Immediate messages were significantly faster on Lima Romeo than they were on November Romeo; delivery times of priority messages - of which it is suspected that a greater number were encrypted - were roughly the same on both broadcasts. It would, therefore, appear that Lima Romeo, which normally carries less traffic than November Romeo, can clear exercise traffic more expeditiously. Once this broadcast becomes ON-LINE and with access to ON-LINE operational nets, the gain should become even more pronounced, and consideration will be given to having all exercise units copy this broadcast if common keying material is available.

CIRCUIT Y-15 (LANIFLT ASW RATT)

CTG 81.9 COMMENT:

Performance of the LANIFLT ASW RATT ON-LINE (Y-15) circuit was disappointing. There were many periods of time during which no traffic would be accepted by NAM 8 (CTF 81) due to "busy on other circuits", "reperf" not working and "wait". At times, interference from unknown stations on adjacent frequencies made this circuit unusable.

It is recommended that LANIFLT ASW RATT and CW circuits be guarded by sufficient numbers of personnel to insure good communications with afloat units.

COMASWFORLANT COMMENT:

The poor performance of this ON-LINE DURATT circuit between CTF 81 and CTG 81.9 besides denying a LARGE CAPACITY circuit to the forces at sea had an equally important side effect in that it denied ON-LINE means between CTG 81.9 and CTG 81.2 since the intention had been for CTF 81 to relay between these two points. This resulted in much frustration at both ends of the circuit with a tendency to blame "the other end". However, past experience tends to indicate that this circuit is consistently poor, or marginal at best when the "at-sea" terminal of the circuit is operated north of Norfolk. It is intended to carry out more methodical tests during the course of the next few months with CVS operating in or transiting the exercise area.

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Also, now that the frequencies are to be handled by NAVCOMMSTA Norfolk, it is expected that more flexibility will exist in the choice of frequencies, a factor which should improve the overall conditions.

It would appear that remarkably few serious traffic handling mistakes were made at CTF 81 Headquarters. On the other hand it is recognized that a more efficient watch could have been maintained if more personnel had been available. In response to a previous request by this headquarters, CNO in his serial 01189P10 of 19 February 1962, has authorized an increase of 8 radiomen to COMASWFORLANT manpower authorization. These new billets should be filled by the next CANUS SLAMEX allowing this headquarters to maintain a significantly more effective watch.

CIRCUIT Y-16 (ASW SSB NET)

USS R.L. WILSON COMMENT:

Strict circuit discipline must be maintained at all times and administrative traffic kept on the proper circuits. The long range voice circuits should not be used as long distance telephones.

USS BASILONE COMMENT:

This destroyer has only three high power transmitters, including two SSB transceivers, one of which, the SSB-1 is unreliable.

It is recommended that the ASW Carrier Group Commander guard the ASW SSB net for destroyers in his Task Group, or else that the destroyers be provided with adequate SSB communications equipment.

CTF 302 COMMENT:

Assistance of USN authorities in the provision of SSB equipment for BONAVENTURE and COLUMBIA was greatly appreciated. This equipment proved most effective, particularly in COLUMBIA. It is anticipated that a greater SSB capability will be available to the RCN in the near future, with the commencement of equipment installation scheduled for 1962.

CTG 81.9 COMMENT:

As the exercise progressed use of the command circuit progressively degraded to that of an all-purpose circuit with a concurrent decline in the use of the CW circuit for the passing of routine exercise orders

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and information. While the advantages of the single side-band voice circuit for distant communications are acknowledged, it is believed that this circuit should be retained for passing of orders and information at the Task Group Command level and above and that the other circuits provided should be used for their designated purposes.

COMASWFORLANT COMMENT:

CTG 81.2, CANCOMCORTON 5, USS HOLDER and USS GLENNON (the latter using a COLLINS 618T transceiver) all agree that SSB was an out-standing performer.

When all units eventually become SSB fitted, the ASW SSB net will have to be restricted to Task Group Command level traffic and above and to passing of contact reports by independent units or senior officer of small groups.

USS BASILONE's desire for more and better equipment is understandable. The problem, however, is considered local, particularly since all HUK group communication orders clearly require that communication casualties affecting the ability of a given unit to comply with the plan in force be reported immediately so that guard can be assumed for her.

AIR COMMUNICATIONS

CVSG 62 COMMENT:

This element worked for the most part on 337.8 mcs with the element OPCONCENTER radio, and the Middleman of CTE 81.2.1.6. However, the aircraft in the OpArea were forced to shift to 273.8 mcs in order to work with CTE 81.2.2.6 on CANUS air/ship/air common. This frequently resulted with element aircraft and resulted in unnecessary SAR uncertainty alert when one aircraft was working in close support of HMCS ALGONQUIN and OPS NORMAL reports were delayed in reaching the element headquarters. It is recommended that all inshore air elements be on the CANUS air/ship/air common UHF frequency in the future. Geographic separation should prevent overloading of the circuit.

Voice communications with ALGONQUIN were outstanding, both on UHF and MHF.

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VP-832 COMMENT:

The condition of aircraft radio equipment was a serious deterrent to air/ground communications. ART-13 transmitters, although serviced, were unreliable because of inadequate preventive maintenance in the past. Auto-tune unit slippage made it necessary to retune and reload the transmitters when changing frequencies. Lack of recent operator experience under poor operating conditions also limited communications. As the exercise progressed, the experience gained improved this situation.

GENERAL COMMENTS:

SIAMEX provided invaluable experience for VP-832 radio operators, both in the air and on the ground. However, until the present status of the radio equipment in the aircraft and the base radio is improved, flight safety monitoring from NAS New York is only marginal.

COMASWFORLANT COMMENT:

In addition to the comments listed above, CVSG 62, CVSG 52, CAP DE LA MADELAINE and VS-880 reported that air communications were in general satisfactory or better; but COMDESDIV 322 and some of his units apparently had frequent difficulties in contacting aircraft in their area. VP-832, (a reserve squadron) which submitted a very exhaustive report, obviously had considerable equipment and personnel difficulties operating out of NAS New York. The extent of the problem is appreciated, but for the time being it would appear that improvement will only be brought about by continued "brute force" application of massive doses of enthusiasm and energy.

Difficulties reported on the SAG net were unfortunately not one-sided: NAVFAC Nantucket also reported interference on 2744, 4280 and 7595 kcs. It would appear, however, that part of the problem resulted from misunderstanding as to the time of shift from DAY to NIGHT frequency and vice versa. This command, even though not directly involved, would be inclined to favor a "shift as required" when directed by the NAVFAC in order to take advantage of the best frequency at all times. A receiver should be kept by the NAVFAC on the alternate frequency at all times.

With respect to the comments offered by COMDESDIV 322 and PURVIS, it is not only desirable, but mandatory that communications be established between surface and air units in a given area, or at least that the "ready" capability be there if EMCON otherwise precludes communicating until submarine contact is obtained. Circuit 23 in particular, and ASP and SAU/AIR circuits also are intended for this purpose. Surface and air units should "cut-in" each other on their contact reports, even if these are also passed ashore. Once contact is made, there is an imperative

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requirement "to do something about it NOW", with all the resources one can bring to bear: this calls for joint action, and hence, communications.

Concur with CVSG-62's recommendation, to the effect that all inshore air elements should be on the CANUS Air/Ship/Air Common UHF frequency. In the rare occasions where this might result in mutual interference between adjacent groups, the senior officer should shift his units to any of the available alternate UHF frequencies.

The problems peculiar to reserve squadrons are appreciated, and it is felt that they should be given every possible assistance in their communications training and preventive maintenance programs. Phasing out of their obsolescent equipment should commence at the earliest possible date.

FREQUENCY PLAN

USS BROWNSON COMMENT:

It is imperative that long-range communication limitations of ships be understood in order not to designate circuits which cannot be effectively guarded. BROWNSON has three dependable long-range MF/HF transmitters.

USS PURVIS COMMENT:

Commercial station overriding Y-14. Also, IANIFLT ASW CW 4280 kcs., when keyed blocks 3261 kcs.

CANCOMCORTON 5 COMMENT:

The assignment of UHF frequencies for use by RCN ships should be in accordance with RCN crystallization. Two frequencies, 387.4 and 267.4, had to be changed since these crystals are not held by the RCN.

One tactical CW frequency, 2518 kcs proved unusable due to interference and 4212 kcs was substituted.

USS RICH COMMENT:

A reason for ASW common clutter was the proximity of the frequency to a circuit used by merchant ships and fishing vessels.

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It is recommended that a voice callsign system similar to the RCN Tactical Call sign system be adopted for U.S. Navy use.

CVSG-52 COMMENT:

The use of the coded voice call system for carrier aircraft is seriously questioned. A brief and casual traffic analysis during a launch/land cycle could readily disclose the calls of the carrier and the squadrons. Surface units in the contact area often encountered difficulty in relating the coded calls to aircraft side numbers with resultant confusion or a compromise of the system in the interest of getting the job done.

CTF 302 COMMENT:

The Tactical Callsign System appeared successful, even on the relatively comprehensive scale on which it was employed during this exercise. There were few serious compromises and these were due undoubtedly to unfamiliarity with the system. A post exercise review of all exercise traffic handled in the MHQ COMMCEN indicated approximately 26 compromises (CTF 302-13, CTG 81.1.2 - 6, MISC-7) due to linkage of plain language unit designations in the text with tactical callsigns in the heading. A few compromises were noted in the mixture of plain and Tactical calls in ship-shore call-ups although the Operation Order indicated that the system was held by NAVRADSTAS.

Greater use of tactical callsigns in off-line encrypted texts is recommended as a means of reducing the length of these messages.

e.g., "D-4" is encrypted as DELTA FOUR whereas CTE 302.4.3.1 is encrypted as CHARLIE TANGO ECHO THREE ZERO TWO PNT FOUR PNT THREE PNT ONE.

Only 125 copies of the key list were available and distribution was therefore necessarily limited. The system is under continuing evaluation to improve the size and design of the key card. The number of copies available in the resultant edition will be increased.

With increased familiarity with this system it is anticipated that keys will be changed at briefer and more irregular intervals in order to enhance the tactical security of the system.

There is a requirement to include general callsigns for "ANY SHIP", "ANY AIRCRAFT" and "MIDDLEMAN" with this system.

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COMASWFORLANT COMMENT:

The equipment limitations of destroyer types are appreciated; unfortunately, the requirement to communicate extensively is such that it is almost always necessary to produce a plan which will assume an "all-on-the-line" status of the equipment. As per standard practice it is up to the individual unit to inform the OTC of any inability to cope with the COMPLAN, and it is up to the latter to enforce necessary guard arrangement. It may also be possible to resort to a LISTENING watch (receiver problems are usually less acute), informing the OTC of this reduced capability.

The information concerning specific frequencies will be taken into account when preparing future COMPLANS.

CANADIAN ENCRYPTED CALLSIGN SYSTEM

USS R.A. OWENS COMMENT:

Letter-number voice calls are barely satisfactory at best although far superior to the two-number voice call employed during CANADIAN-US Operation BEAGLE I in which this ship participated last March (1961). There is too much chance for confusing calls with text, particularly during difficult weather conditions and rapid maneuvers. Retaining calls of easily identifiable commands for the entire exercise period was sensible and helpful.

USS HOLDER COMMENT:

Much confusion arose concerning the use of RCN call signs particularly in addressing Bathythermograph messages. Call sign linkage was almost impossible to avoid. Most units worked out independent solutions.

It is recommended that all conceivable addressees of routine reports (such as Hydrographic Office, Washington, D.C.) be supplied a copy of the RCN Callsigns for all future CANUS exercises.

CTG 81.9 COMMENT:

The RCN Tactical Call Sign system worked well in most instances. It eliminated the need for encrypting callsigns, thereby reducing processing time to a large degree. The system did cause some confusion with area designators which were similar, and in passing traffic over ship/shore circuits to stations not involved in the exercise. Overall, it was simple, easy to use, and rapid.

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COMASWFORLANT COMMENT:

COMDESRON 36, CANCOMCORTRON 5, BROWNSON and ATABASKAN were satisfied with the RCN callsign system.

The improvements envisaged by CTF 302 should rid the system of more objectionable weaknesses; thereafter it should prove more acceptable for CANUS use and could become standard practice. Further thought will be given to the possibility of adopting a similar system for U.S. National use.

TRUE DATE-TIME GROUP

CTF 302 COMMENT:

There were no apparent difficulties noted in the use of True Date-Time-Groups by Canadian Forces, although there was occasional reluctance to employ a "TDTG" and an unclassified reference. A few unclassified messages were noted which included a "TDTG" as well as a normal DTG. With the tremendous volume of encrypted traffic during this type of operation, the ability to make unclassified replies and references to off-line encrypted messages is a useful advantage. In view of the tactical nature of this traffic, the slight risk of message compromise is readily acceptable.

CANCOMCORTRON 5 COMMENT:

The use of True Date-Time-Groups to enable unclassified references to classified messages is a good system which meets security requirements.

It is recommended this be considered for continued use within the RCN.

AUTHENTICATION

CTF 302 COMMENT:

Instructions for the use of either AMSP 620 or KAA-29 make no specific exception of such groups as exercise nicknames or "UNCLAS". There is however, a reluctance in some units to include these groups when determining authenticators. As a result, authentication procedures during this exercise were inconsistent and challenges of seemingly "incorrect" authentication served only to compromise the system. In view of the confusion that has resulted, it is recommended that a clarifying policy be included in the instructions for use of these systems.

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CANCOMCORTRON 5 COMMENT:

Due to delays in reception of OPORDER changes confusion was caused by the fact that a specific edition of KAA-29 was ordered to be used.

It is recommended that in future OPORDERS direct effective edition should be used.

COMASWFORLANT COMMENT:

Concur with CANCOMCORTRON 5's recommendation and with CTF 302's recommendation. It is intended to adopt the procedure already in force in FACFLT/MARPAC, which is formulated as follows:

"The word UNCLAS/(Classification) as applicable followed by the words EXERCISE (Nickname) shall appear in plain language as the first words of the text in unclassified and ON-LINE traffic except tactical signals. In encrypted traffic the words EXERCISE (Nickname) shall be sent in the clear preceding the crypto system indicator. For authentication purposes, the words EXERCISE (Nickname) and UNCLAS/(Classification) are not to be considered part of the text when determining test elements."

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RAINBOW FORMS

VP-21 COMMENT:

After the first day of operations the Rainbow reports were seldom received on time . . . preliminary Green and Brown information was passed between OPCON and the squadron by telephone. Other color forms served little purpose for individual squadrons. Eliminating element commanders as addressees except when necessary to pass essential information would relieve the load of processing classified messages.

CTF 302 COMMENT:

During the planning phase of the exercises detailed consideration should be given to the dissemination of message traffic, particularly aircraft rainbow forms, and guidance included in the Operation Order. While addressees already appeared extensive on these forms, much time was consumed additionally in communications centres by resprocessing messages for readdressals. Resultant delays in receipt often negated the value of the message entirely. Further, much information within the various rainbow forms appeared repetitious. Declassification of forms BROWN and YELLOW are aiding in the more timely distribution of this information.

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CANCOMCORTRON 5 COMMENT:

The practice of sending forms BROWN, TAN, and YELLOW unclassified is agreed with. This greatly assists crypto centres and is considered to be realistic.

CVSG-62 COMMENT:

The wide dissemination of rainbow messages within TU 81.2.1 is considered excessive. Element commanders require information copies of GREENS and BROWNS only for adjacent areas which affect aircraft operating through or next to his own area and which reflect targets that might enter his area. Others are superfluous and only tend to delay and conceal more vital traffic. Pertinent information from PURPLE reports should be briefed and disseminated by periodic SITSUMS from the CTG or CTU headquarters. Info on Forms YELLOW duplicated information already provided in BROWNS. Making the ship an info addressee on the BROWN would eliminate need for YELLOW.

It is noted that the unclassified BROWNS referenced, and often quoted nearly verbatim, the confidential GREENS. This provides no communication security to an intercepting enemy and could in fact, compromise the whole cryptosystem being used for the GREENS.

COMDESDIV 322 COMMENT:

It is suggested that Forms GREEN be given wider dissemination in order that surface units may be aware of aircraft task assignments in own and adjacent areas.

COMASWFORLANT COMMENT:

There is always the possibility that some information which one has withheld might have been significant. There is, unfortunately, no easy solution, and the final responsibility must remain with the "thinking originator" in every instance.

However, message dissemination guides can be useful, particularly in the case of rather stereotyped reports such as the RAINBOWS. It is therefore, intended to implement CTF 302's recommendation; during the planning phase of the exercises, detailed consideration will be given to the dissemination of message traffic, particularly aircraft rainbow forms, and guidance included in the Operation Order.

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The considered opinion of commanders - - such as that expressed by VP-21 and CVSG-62 - - will be most useful in framing a RAINBOW address guide.

The SECURITY as well as the repetitious aspects of the text of some RAINBOW forms will be investigated; the problem will be dealt with as a whole during a CANUS communications conference to be convened by CTF 81 in the near future.

ADDRESS INDICATING GROUPS

CTF 302 COMMENT:

It is apparent that with the number of forces involved in SLAMEX, an AIG would have assisted in the promulgation of general messages and operation order changes.

CTG 81.9 COMMENT:

It is recommended that AIG's be used for a task force and for major subdivisions thereof.

COMASWFORLANT COMMENT:

CANCOMCORTRON 5, HAIDA, and ATHABASKAN also supported the use of AIG's.

Concur with CTF 302's appraisal. Promulgation of an exercise forces AIG equivalent to a plain language designation such as "ALL FORCES PARTICIPATING IN SLAMEX" will be considered.

Regarding CTG 81.9's suggestion, the usefulness of the AIG would depend on the number of "major subdivisions" involved, and also on the proportion remaining of units belonging to the Task Force which are not committed in the exercise. For it is felt that unless "exempts" numbering more than one or two were required, it would be just as convenient to use COLLECTIVE callsigns, such as TG 81.9, TG 302.0, TG 81.1, etc. AIG's are particularly useful to "bring together under one designation", a significant number of commands for which no collective call exists; and the fact remains that such an assemblage of addressees is not as readily identifiable for the operator as are collective calls, especially if too many AIG's are created. The usefulness of a few AIG's to designate certain groups of units not easily "collected" under a collective call sign is recognized.

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EMCON, CIRCUIT DISCIPLINE, SECURITY OF COMMUNICATIONS

CTG 81.9 COMMENT:

The ASW SSB net (Y-16) was greatly abused with non-operational traffic. No authentication was used. In one instance noted, classified traffic was passed over this circuit (CTG 81.2, 102147Z) without encryption.

COMDESDIV 362 COMMENT:

The communications during this exercise were excessive on all circuits that this unit guarded. A need for a strong net control station was obvious and this was particularly so on ASW COMMON. The majority of the traffic on this circuit could have been passed on UHF or was unnecessary. The requesting of ship's position was excessive and would have provided any enemy unit with intercept capability a fairly accurate estimate of our force in a short period of time.

CTG 81.2 COMMENT:

Radio transmissions during CANUS SLAMEX were far in excess of what they should have been from the surface forces. If the Russian trawlers off the U.S. coast have all the ELINT equipment they are supposed to have, then radio silence from the surface forces will be of the utmost importance except when actually sighting or prosecuting a contact.

In future exercises more emphasis should be placed on passive ECM by the surface forces. This will require that more emphasis be placed on the broadcasts. Broadcast is used here in the sense that all circuits would be broadcast circuits until radio silence was broken by a surface unit.

CTF 302 COMMENT:

MINIMIZE was not implemented in the CAMLANT area in view of non-exercise forces copying the LR broadcast. In the future non-exercise forces will be shifted to a secondary broadcast, and a general MINIMIZE will be ordered.

COMDESRON 36 COMMENT:

Comments by DAMATO concerning passing of information from the main group to units joining via ASW COMMON is not concurred with. This

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information, if required, should be passed upon closing to UHF or visual range. Units should avoid the use of MF/HF circuits; use of HUK PRI/HUK ALT (with Middleman/Autocat as appropriate) should be required.

COMASWFORLANT COMMENT:

In addition to the above comments, HAIDA and RICH pointed out that the lack of EMCON, especially on HF, was deplorable, and that, generally the volume of traffic was out of all proportion with the activity taking place at any one time.

It may be contended, as CTG 81.9 did, that excessive communications and position reporting were exercise artificialities which would not be permitted in wartime; indeed it must be appreciated that as long as operations are under the direction of shore headquarters, a certain amount of "ship/shore" communicating will be required, and furthermore, if maximum advantage in training is to accrue in peacetime, even more communicating may take place. Nevertheless, it is felt, as suggested by CTG 81.2, that in future exercises more emphasis should be placed on passive ECM (and EMCON) by surface forces. This emphasis leading to a semi-silent condition (radio communications only are considered here) would ensure a dual purpose: to deny the enemy as much information as possible and, most important, to ensure that only truly relevant, well screened and significant traffic is passed from ships at sea.

COMDESRON 36's approach to the problem of reducing tactical radio transmissions between units at sea is heartily endorsed.

As long as only short term tactical information is disclosed on SSB, the advantages far out-weigh the risks involved. Indeed the free, personalized and on the spot exchange of information between commanders is deemed very valuable, and this particular feature likening SSB to long distance telephone is not objectionable; the users, however, must bear in mind that this is a radio circuit, and that adherence to proper voice procedure (ACP 125) will always in the long run speed up the flow of information and therefore enhance the value of this channel. This circuit should be logged at all times, but not necessarily verbatim.

CRYPTOGRAPHY

CTF 302 COMMENT:

Difficulties arising from use of the special tactical ADONIS procedures were due to general unfamiliarity with the system. With the implementation of a permanent tactical ADONIS channel 1 March 1962, it is expected that these difficulties will be alleviated.

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Units reported difficulty in exchanging information using the numeral code AMSP 608. Again, this is due apparently to an unfamiliarity of operators with the codes and indicates a laxity in some units to ensure that personnel are trained in the use of publications and procedures prescribed for the exercise.

CTG 302.0 COMMENT:

The large number of encrypted messages of high precedence led to delays in receipt which rendered the information contained in them of doubtful value.

USS PURVIS COMMENT:

Surface summaries and contact identification data received via off-line crypto methods are generally too late to be of significant value.

USS STRONG COMMENT:

In an effort to disseminate information as quickly as possible, encrypted SLAMEX messages were sent without being carefully checked. Thus many misspelled and unintelligible words appeared too frequently. The Canadians ran all numerals together rather than spacing them. This produced special hindrances when they were garbled after being decrypted.

COMASWFORLANT COMMENT:

Strict compliance with current OFF-LINE crypto procedures is required; in particular, it is emphasized that "check decryption" must be carried out. "Restraint" and "sound appreciation" by originators is indicated, in order not to generate traffic which they could readily appreciate, under given circumstances, would not reach their destination in time to be of any real value.

JAMMING AND IMITATIVE DECEPTION

CANCOMCORTRON 5 COMMENT:

It is regretted that again another exercise has completed without any jamming being experienced. It is essential that surface and air units be made to exercise in the presence of jamming. The development of anti-jamming techniques will never be progressed if forces are not subjected to this harassment.

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COMASWFORLANT COMMENT:

It is indeed essential that surface and air units be made to exercise in the presence of jamming. The use of this harassing technique, however, is unlikely in a SLAMEX situation, at least until "phase IV". It is felt therefore, that it would be more realistic, and generally more beneficial, to schedule jamming incidents during other types of fleet exercises, such as STRIKE and HUK operations, CONVEX (under air attacks) and "type training" exercises.

SPECIAL PROCEDURES; SOI (JOINT, COMMUNICATIONS)

CTF 302 COMMENT:

Several "special" communications procedures and publications have now received extensive evaluation in CANUS exercises. It is strongly recommended that a CANUS Conference be convened to discuss permanent implementation of these procedures on a National and bi-lateral basis. Items to be discussed should include:

- Callsign Systems.
- Authentication Policy.
- Contact reporting.
- Rainbow Formats.
- Crypto Procedures.
- Standardization of Classification.

Additionally, such a conference might well consider production of joint Standard Operating Instructions (Communications) for CANUS ASW Operations. Such an SOI would require resolution of landline requirements and radio facilities. It is considered that such an SOI would greatly reduce the size of communications instructions currently required for each operation order and further, would improve familiarity with CANUS communications procedures on a daily basis.

COMASWFORLANT COMMENT:

Concur; date and place will be arranged by separate correspondence.

SITREP AND CONTACT REPORT FORMS

CTF 302 COMMENT:

Use of the special contact and situations report forms proved most successful, and it is intended that greater use now be made of these forms in daily operations as well as in exercises.

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It is further suggested that FORMS RED and BLACK might well be revised to include the use of these special forms, thus permitting an "unclassified RAINBOW format". During the exercise, lengthy encryptions occasioned by the FORMS RED and BLACK served only to congest crypto facilities while the same information had previously been generally disseminated by unclassified messages employing the special exercise report forms.

Greater use might also have been made of the "flight operations/ weather" section of the situation report form. Plain language reports of, or requests for, the state of flight operations, served only to compromise the activity of the carrier groups. The vocabulary of this section of the form should be reviewed to ensure that it is sufficiently comprehensive.

In view of the extensive use of this form in several major exercises, it is recommended that a "scramble" be employed in the future.

COMASWFORLANT COMMENTS:

In past consultations, the Naval Security Group expressed the opinion that, convenient as it is, the SITREP form does not offer more than the shortest term security, and that SCRAMBLING would not significantly improve it. This should not preclude CTF 302 and CTF 81 preparing reasonably detailed proposals, to be discussed at the CANUS conference previously mentioned.

PERSONNEL SITUATION

CTG 81.2

There are insufficient qualified personnel and reliable equipment to handle the communications involved. This would be compounded if other commands were involved in war-time.

It is recommended that a committee composed of ASW operations Officers and Communicators be created to assist in overcoming this mammoth problem.

USS R.A. OWENS COMMENT:

The load on communications personnel and equipment was acceptable.

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CTG 81.9 COMMENT:

It is recommended that LANIFLT ASW RATT and CW circuits be guarded by sufficient numbers of personnel to insure good communications with afloat units.

COMASWFORLANT COMMENT:

It would appear that the most severe personnel shortages were experienced at shore headquarters. This situation is being remedied at COMASWFORLANT Headquarters by the CNO authorized increase of 8 radiomen. This does not relieve CTG 81.2's problem, and even though certain improvements in equipment are forthcoming, there is no easy solution in sight; until such time as "skeleton proposals" are formulated it is felt that the committee proposed by CTG 81.2 would not substantially improve the situation.

MAJOR RECOMMENDATIONS SUMMARY

In view of CTF 302's stated intention to shift non-exercise units from LIMA ROMEO to a secondary broadcast, consideration should be given to having all USN units involved in a CANUS SLAMEX copy LIMA ROMEO as soon as the latter becomes ON-LINE, for under these conditions LIMA ROMEO should be considerably less crowded than NOVEMBER ROMEO broadcast.

The well-proven reliability of SSB circuits warrants the accelerated fitting of this capability to all ships and, eventually, aircraft.

It is considered feasible and desirable to eliminate the requirement for surface units to guard a CW SAG circuit, particularly if all CANUS SLAMEX ships are capable of copying a relatively uncluttered, separate and ON-LINE broadcast. This course of action would permit the SOSUS evaluation center to better control the amount and quality of evaluated SOSUS information to be addressed to the ships via the broadcast, and hence eliminate some of the "overabundance" of intelligence which apparently tends to overcome the small ship's ability to digest it. It would also alleviate the equipment and watchkeeping problem keenly felt by the forces at sea. Commanding Officers would of course retain the option to order a LISTENING watch to be kept on the SAG net; and the appropriate shore headquarters could order that communications be established with a particular NAVFAC when the situation warranted.

UHF air communications were generally good; HF air communications varied more markedly from unit to unit, and since poor propagation conditions were a common factor for all, it must be assumed that the level of training

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of the operators and the state of the equipment were prime determinants of performance. It is recommended that the reserve squadrons be given every possible assistance in their communications training and preventive maintenance programed. Their obsolescent equipment will be phased out at the earliest possible date when funds are approved.

Continued use of an improved Canadian callsign card is recommended. The desirability of adopting this or a similar system for USN forces will be investigated, and will be reported separately.

It is recommended that a general reduction in the length and volume of message traffic be promoted by: (a) careful consideration of the number of INFO addressees required on messages, particularly RAINBOW forms and BT messages; (b) possible elimination of the repetitious components of related RAINBOW Forms; (c) Use of a limited number of exercise-tailored AIG's; (d) an attempt by originators to eliminate traffic which will not reach its destination in time to be of any real value.

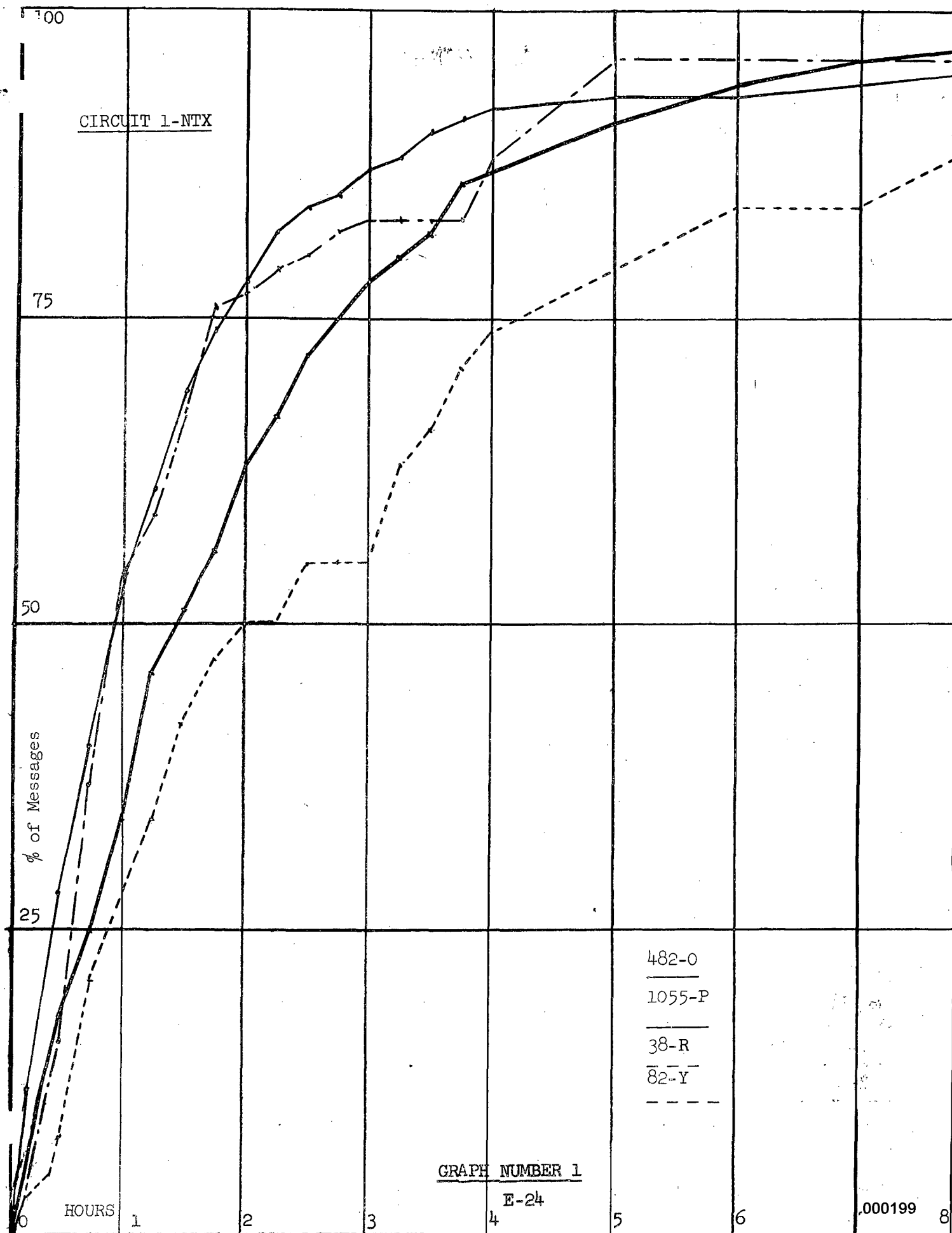
It is recommended that a CANUS conference be convened to discuss permanent implementation of various procedures so far used as expedients or on a trial basis. The production of joint Standard Operating Instructions (communications), as suggested by CTF 302, is considered a most desirable project. COMASWFORLANT will originate separate correspondence on this subject.

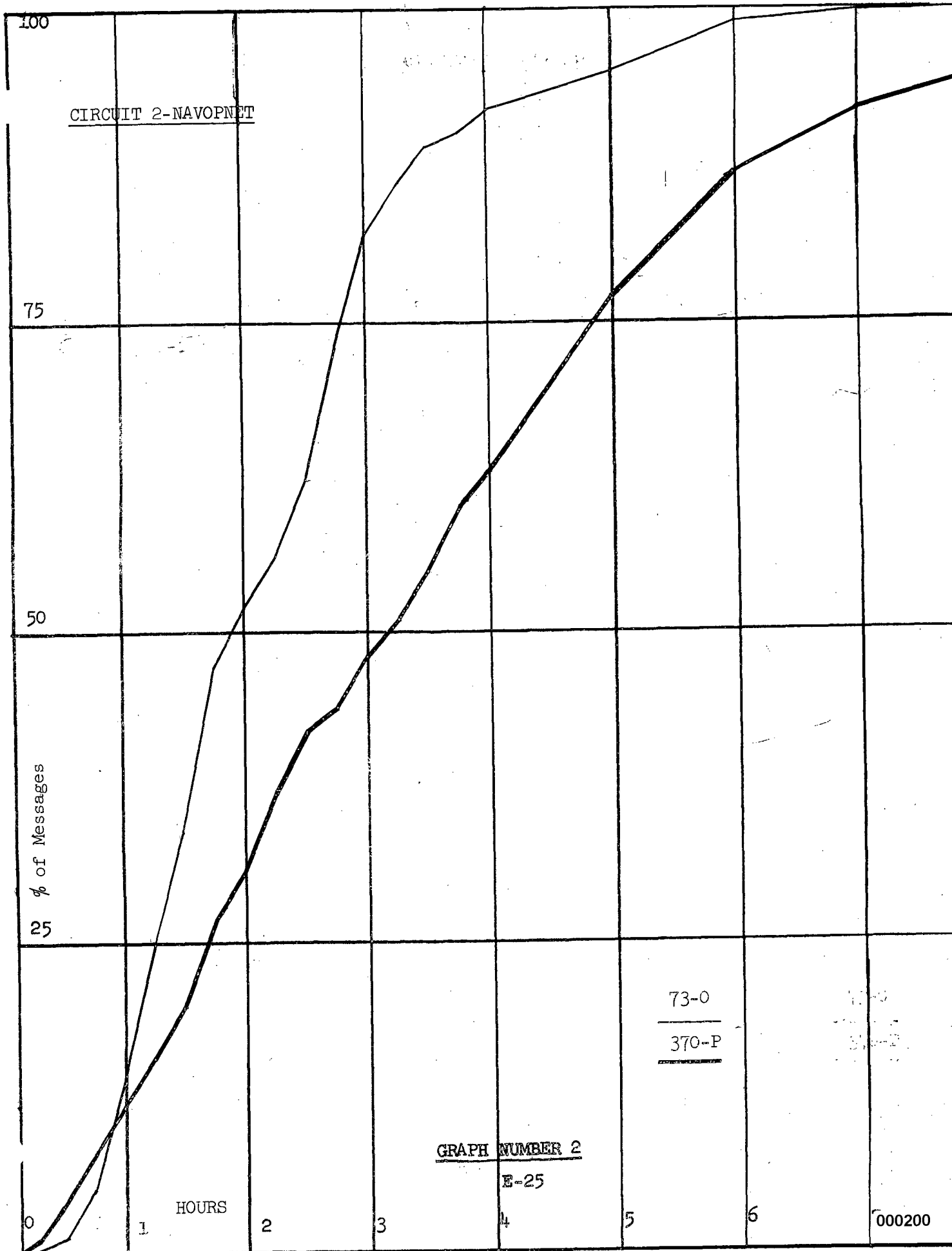
CANUS SLAMEX COMMUNICATIONS DATA

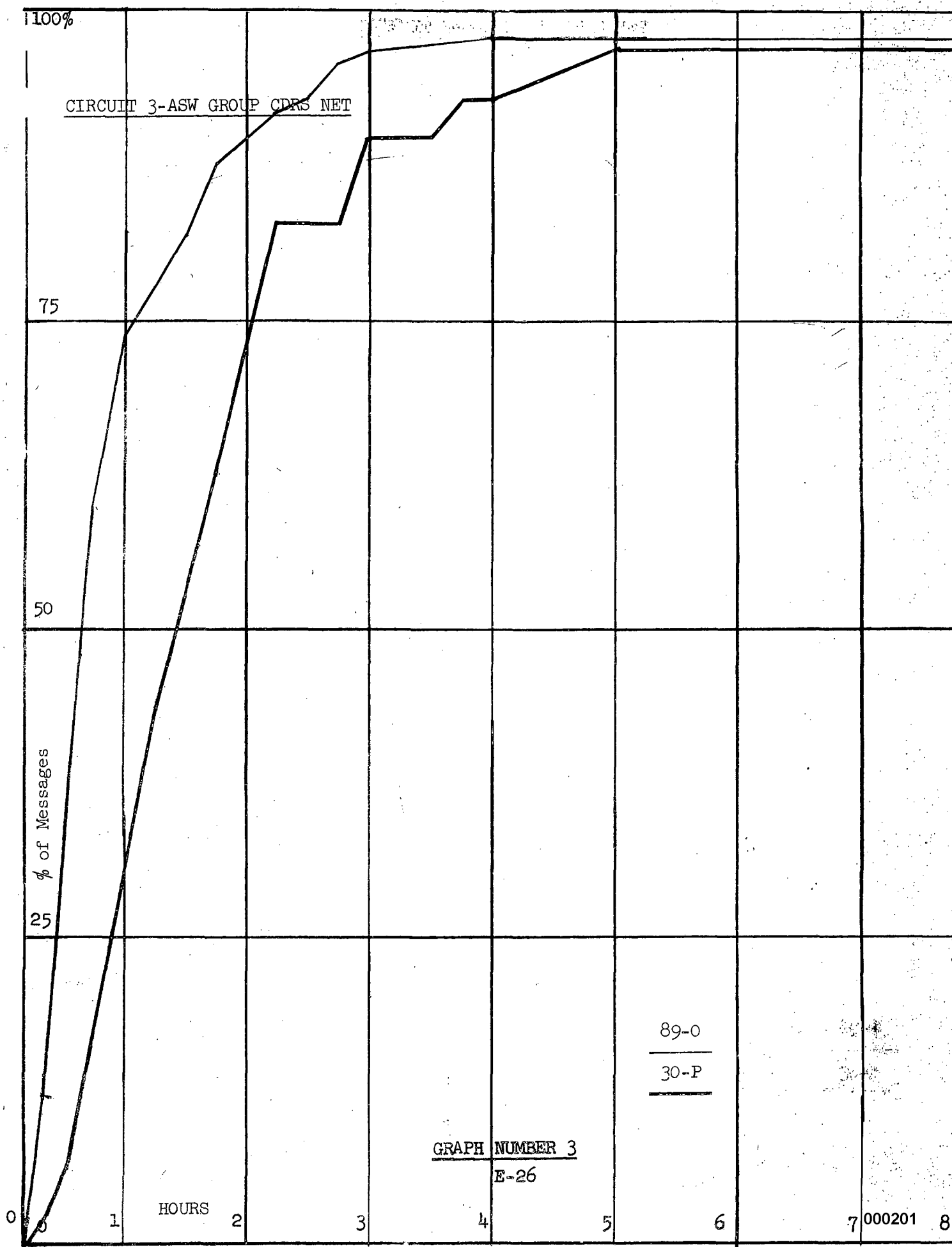
The data utilized in this analysis has been compiled from messages recieved by CTF 81, CTF 302, CTG 302.0, CTG 81.2 and CTG 81.9 during the three busiest days of the exercise. Over the period 10, 11 and 12 December, a total of 2843 messages were handled on the circuits analysed.

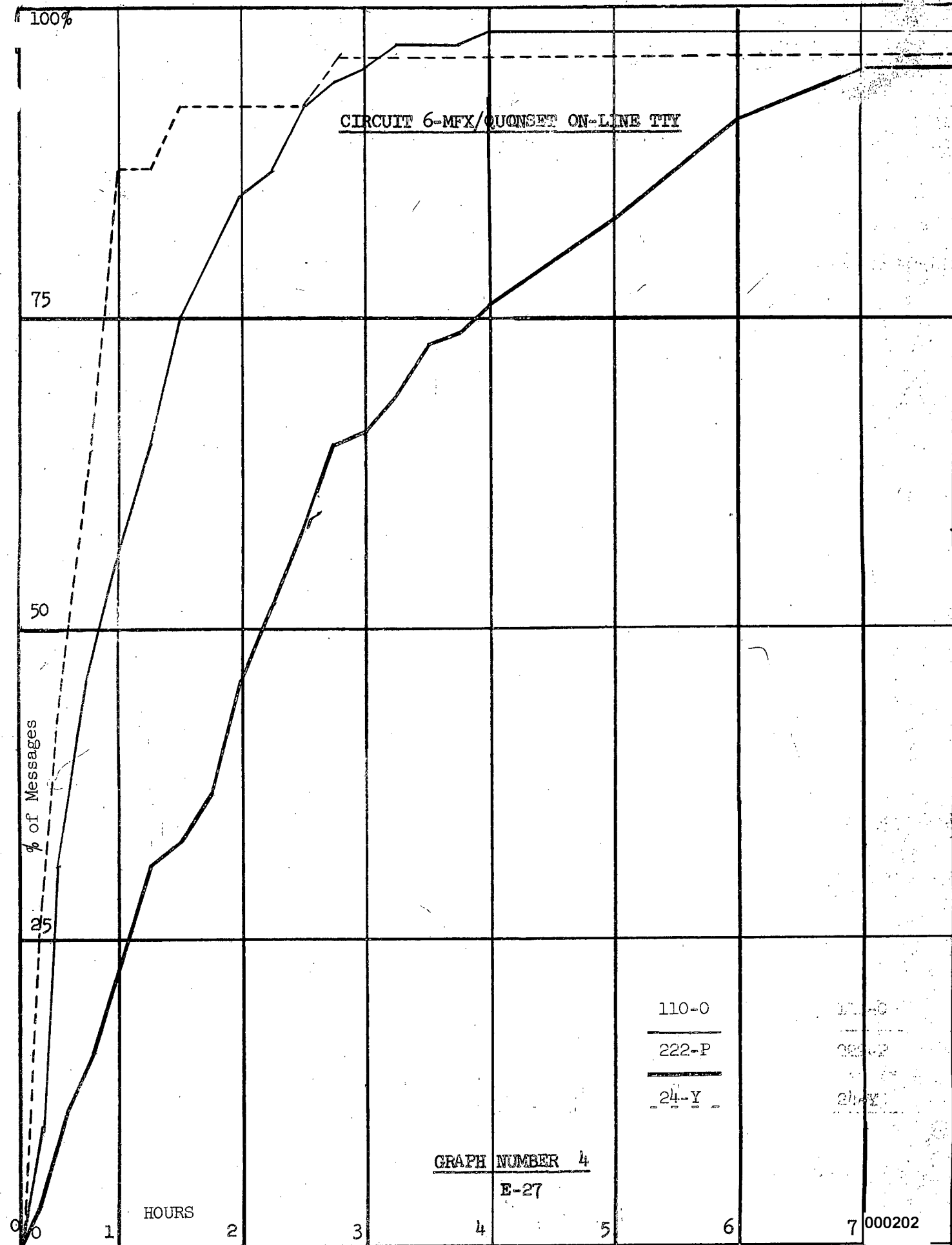
All the graphs show DTG/TOR IN COMMUNICATION SPACES and, therefore, cover the time required for processing, including encryption in the case of OFF-LINE circuits, but not the decryption and processing for distribution at the receiving end; in other words, TIME HANDED OVER TO A COMMUNICATOR AT ORIGINATING STATION, TO TIME OF RECEIPT BY A COMMUNICATOR AT ADDRESSEE STATION. The analysis is indicative of CIRCUIT TIME, but not necessarily of overall communications efficiency.

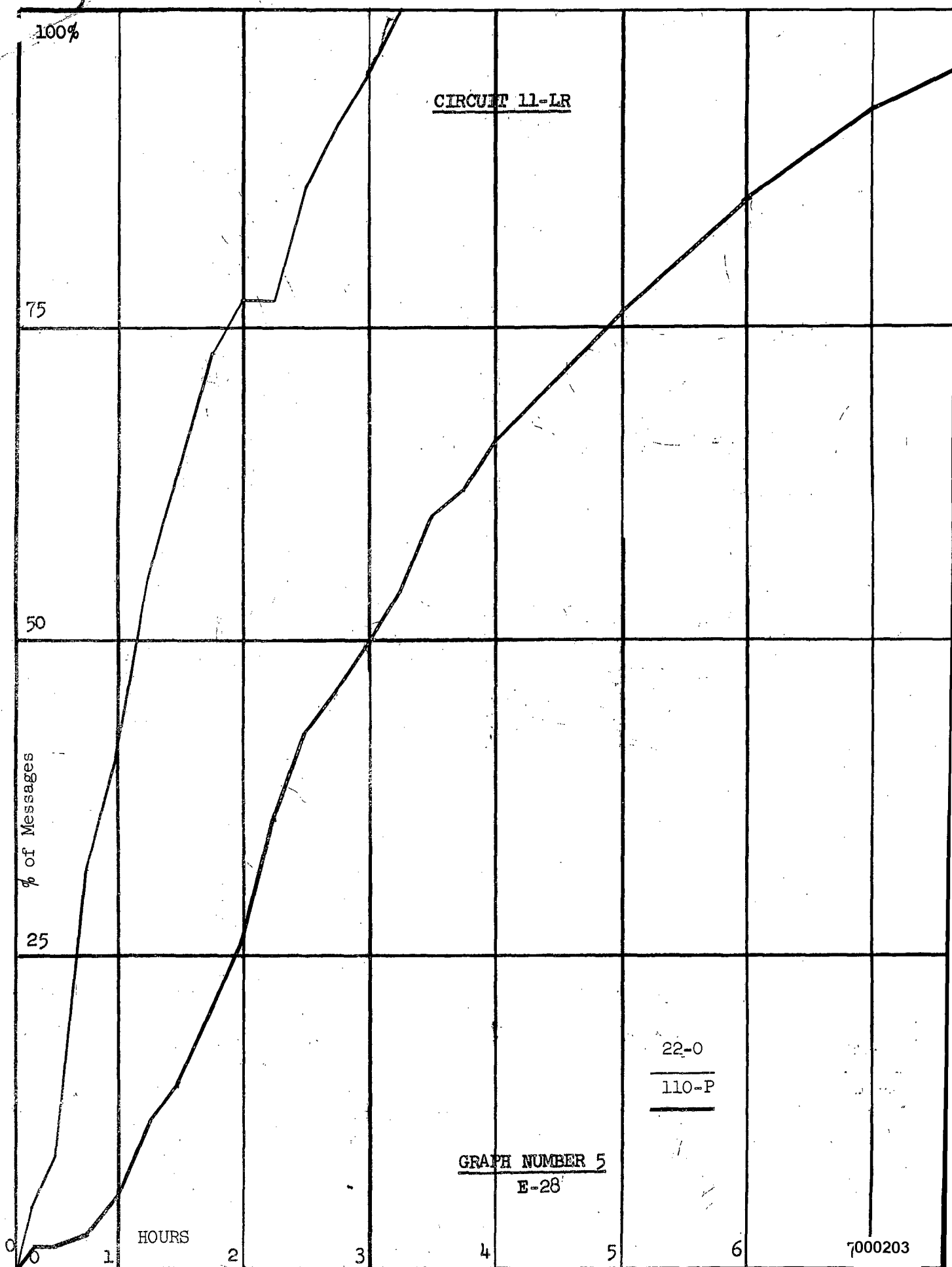
The data now available on IBM cards can yield more information than has been so far extracted, and it is intended to carry the analysis to completion at a later date.

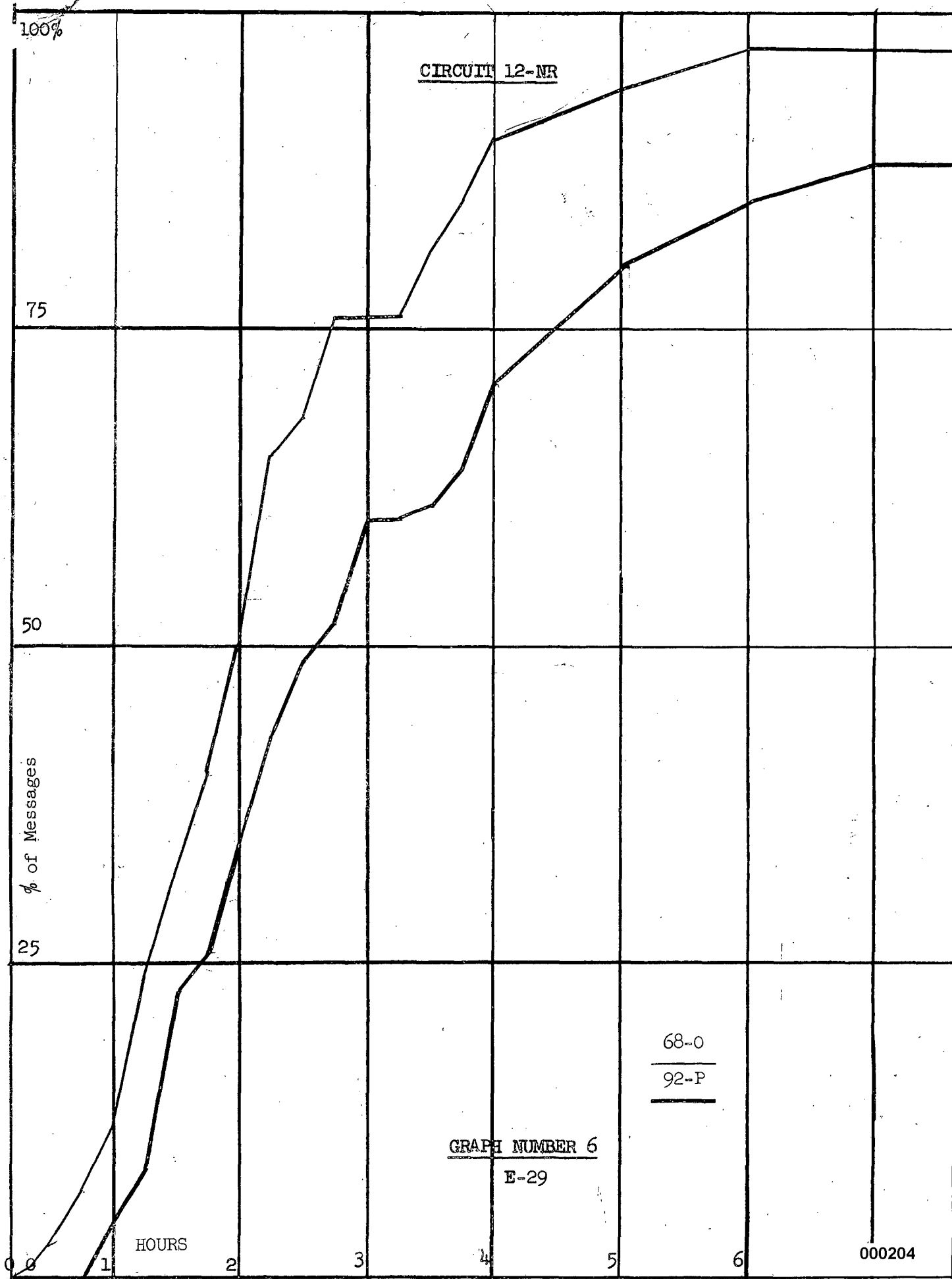












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Section F

EMCON PROCEDURES

CTG 81.9 COMMENT:

PHASE II. TG 81.9 was directed to use continuous radar, both surface and air. Radar flooding of the area was believed to be the best anti-surface/anti-snorkel tactic.

PHASE III. Continuous use of surface radars and intermittent airborne radar was directed. One flight was directed to silence radar, and use only ECM/visual search because of the high sea state.

PHASE IV. All shipboard radars were silenced except surface search radars at commencement of Phase IV. Ships were permitted to use surface search radars because of reduced visibility. No aircraft were airborne at commencement of Phase IV until 130630R due to adverse flying conditions. When flight operations resumed, unrestricted use of radars was signalled. Weather conditions at this time dictated electronic control of aircraft.

PASSIVE ECM RESULTS

ECM guards in the X and S bands were distributed among the group, with the primary emphasis on X band. Several ECM detections were made in the X band, but none led to detection of submarines. No valid ECM fixes were obtained during the exercise. This fact could be partially attributed to the dispersal of units. WASP ECM operator detected ETHAN ALLEN's radar which subsequently led to radar detection by WASP at a distance of 12 miles. (ETHAN ALLEN was in the area but not participating in the exercise.)

It is not known at this time the extent of radiation by the submarines, or the tactical use they made of the Task Group's electronic emissions. Therefore, the effectiveness of the EMCON plan and ECM search cannot be properly evaluated at this time.

OinC DET 48 COMMENT:

EMCON Procedures. In an exercise of this scope, it is considered that when the carrier is compelled to assume an EMCON condition on radar usage, the AD5W aircraft could very effectively supply the ship with adequate radar coverage through the use of Bellhop. This should be preferable to using "Black IFF" as Bellhop does not require an electronic emission from the ship, whereas "Black IFF" does. If it is considered that an ECM plot of the AD5W could disclose the ship's position by its fixed relationship with the carrier (such as a 9L oriented perpendicular to the axis) then a random search plan should be employed.

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COMASWFORLANT COMMENT:

During the alert and reinforced alert, the value of EMCON is not to defend the force against attack, but should be slanted toward harrassing the submarine and preventing the submarine from escaping detection.

CVSG-52 COMMENT:

The practice of assigning control of intermittent radar search to the aircraft commanders is considered the most practical and effective means of limited control of radar emission. Sufficient guidance is available in tactical publication to insure effective control.

CTG 81.9 COMMENT:

Concur.

COMASWFORLANT COMMENT:

Concur.

COMDESRON 36 COMMENT:

The sample HUK Group EMCON Plan contained in Appendix B to NWP-33 is an excellent one, it meets the necessary requirements for the various tactical and strategic situations; its use is deemed appropriate. The danger of disclosure of the tactical situation through communications analysis is highly probable when EMCON is relaxed.

CTG 81.9 COMMENT:

The EMCON plan and signals in ACP-175(A) are obsolete and are not compatible with antisubmarine carrier group operations. The plan does not have sufficient letter indicators for emission status, such as listed in Appendix B to NWP-33, to give the required flexibility to the EMCON plans.

RECOMMENDATION:

In future exercises include the operation order an EMCON plan using the sample forms in Appendix B to NWP-33 as a guide.

COMASWFORLANT COMMENT:

Concur. The plan in ATP-1(A) Vol. II (and formerly in ACP-175(A)) is not adequate for the purpose. NWP-33 contains a more comprehensive plan, but it is not available to Canadian operating forces. Another plan, also more detailed than ATP-1(A) Vol. II is contained in Canadian Atlantic Tactical Publication One (CATP-1) but that is not held by U.S. Navy operating forces. Measures are in hand to remedy this matter. Until then the EMCON plan will be included in Exercise OPORDERS.

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Section G

ASWEPS

CONCEPT OF TEAM EMBARKED IN CARRIER

CTG 81.9 COMMENT:

The Hydrographic Office Oceanographic Team embarked in the WASP provided the Task Group with correct and up-to-date information on sonar conditions in the area. Accuracy of the charts published was later verified by Bathythermograms, ranges at which the BLENNY was held, and reports from helicopter pilots. In addition to immediate benefits during the exercise, a great amount of valuable research data was collected by the oceanographic team.

Except for research purposes, ship or staff personnel, with a short indoctrination, could perform the services presently rendered by the oceanographic team. Shore based oceanographers, utilizing facsimile equipment could provide the required data, although it would be less expeditious and there would be periods of lost data due to communications difficulties.

USEFULNESS OF INFORMATION SUPPLIED

The ASWEPS data as it is now prepared and promulgated: sea surface temperatures and layer depths, is of only slight value to a Task Group Commander. However, this program has the capability of providing additional useful information. A method of computing predicted sonar ranges, utilizing all the data available in the Bathythermogram is required. Layer depth information is a step in predicting sonar conditions but in itself does not nearly present the complete sonar picture. Such a method would of necessity be complex and might well require the presence of an oceanographic team or naval personnel with special training in this field. The information forthcoming from such a program would be of such value as to justify the program.

Utilization of ASWEPS information is a new concept in ASW and as such requires study of methods and indoctrination of all personnel involved to obtain the maximum benefits.

RECOMMENDATION:

That a means of predicting sonar ranges utilizing all data on the Bathythermogram be devised and that this information be promulgated in a manner similar to that now utilized for sea surface temperatures and layer depths.

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COMASWFORLANT COMMENT:

Sonar range predictions will be one of the ultimate products of ASWEPS. ASWEPS planning provides for the location of a Tactical Forecast/Display Subsystem, manned by specially trained personnel, aboard the CVS. This subsystem is designed to furnish operational forecasts for surveillance, weapon and vehicular system performance. These predictions will include not only surface and airborne sonar performance, but also optimum sonobuoy patterns, optimum EER depths, exhaust trail persistence, optimum torpedo acquisition depth and optimum firing depth for nuclear ordnance. COMASWFORLANT is evaluating a new system for range prediction originated by KWESTEVDET (OPTEVFOR) which attempts to utilize all of the BT data as suggested.

TRANSMISSION OF ASWEPS MESSAGES

CTG 81.9 COMMENT:

A major problem occurring during the exercise was the compromise of ships' positions by the transmission of unclassified bathythermograph messages which included positions of ships in latitude and longitude. The extension of on-line crypto systems to destroyers will eliminate this problem. Until this is realized a proposed solution is to give positions in scrambled WORLD GEOREF co-ordinates. The increased volume of traffic incurred by the bathythermograph reporting can be greatly alleviated by utilizing the weather and position groups of the reports to replace such information transmitted on other circuits.

RECOMMENDATION:

That positions in bathythermograph messages be in scrambled WORLD GEOREF co-ordinates.

That position and weather data in bathythermograph messages be used in lieu of similar data reported on other circuits.

COMASWFORLANT COMMENT:

Service ASWEPS is designed for ultimate integration with the Naval Weather Service since oceanographic forecasting is dependent upon the Weathermaster System for a large portion of its inputs. Until ASWEPS becomes operational it is permissible for task group commanders to devise means for encoding position information and to consolidate synoptic report formats within the mobile network; however, no change should be made in the prescribed formats for reports made to Hydro and the Fleet Weather Centers.

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Section H

SOSUS

CTG 81.9 COMMENT:

Intensification of searches in SOSUS probability areas and along SOSUS lines of bearing was not feasible because the SOSUS probability areas given either encompassed the entire area of responsibility or were negated by the SOSUS system before an intensification of forces could be effected. SOSUS lines of bearing falling in the area were searched by aircraft and in some cases by single destroyers. In view of the existing probability areas, coupled with distance to the arrays, the probability that submarines tracked were in the assigned area was so low it was not considered expedient to concentrate forces for a close sweep of these lines.

SOSUS Operations. Although SOSUS information was used advisedly, it did not prove indispensable to the Task Group in this exercise. At the same time, a great deal of effort was spent in decoding and plotting faulty SOSUS reports and in passing the results to subordinate units, which could have been saved by a preliminary evaluation at the source. It is recommended that in future exercises SOSUS information be analyzed and evaluated at a center ashore and that the results be passed to units at sea in the form of reliable lines of position and areas of probability.

SOSUS Communications. Rough SOSUS data received was seriously degraded by a high percentage of garbled messages and by frequent negating of information. Garbled messages resulted in time losses varying from minutes to hours while garbles were cleared. Serious doubts existed concerning the accuracy of information finally derived from these messages. The possibility of garbling was present with all rough data messages, which generated doubt as to the accuracy of this information and made diversion of forces questionable. The percentage of garbles improved as the exercise progressed.

RECOMMENDATION:

That rough SOSUS information be followed as expeditiously as possible by fully analyzed data transmitted via a secure system.

COMASWFORLANT COMMENT:

Traffic analysis in SLAMEX 1-61 indicated that a profuse mass of unevaluated SOSUS data (grid messages) overloaded many vital communications circuits. The following remedial action to expedite the flow of evaluated SOSUS information is indicated:

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Unevaluated data will be addressed only to forces capable of timely reaction, including the HUK group.

No backup relay will be provided. To be of tactical value intelligence must reach the investigative unit directly from the Communicating NAVFAC.

Units will receive grid messages only on those targets appearing to lie within their area of search responsibility.

Shore command will no longer be an addressee on grid messages.

COMDESDIV 362 COMMENT:

The SOSUS information received at the destroyer level consisted of readdressed messages from the Task Group Commander.

This information was in some cases evaluated, i.e., area of probabilities, in other cases it consisted of information which served no purpose other than to make known the number of possible contacts present.

In operations where the Task Group Commander's flagship may be sunk or placed out of operation, it is recommended as minimum, that the Task Unit and Task Element Commanders be kept informed of the SOSUS plot.

CTG 81.9 COMMENT:

Concur that Task Unit and Element Commanders should be aware of SOSUS plot. Smooth SOSUS data was available to all destroyers on November Romeo broadcast. Areas of SOSUS probability within the area of responsibility were passed to Task Group Units when received. It is not considered practical or necessary to transmit rough SOSUS data to units other than Task Group Commanders.

RECOMMENDATION:

Task Groups as well as Task Group Commanders be indicated as addressees on SOSUS messages transmitted via fleet broadcast.

COMASWFORLANT COMMENT:

At any time Task Group Commanders may request that major subordinates, as desired, be added to the distribution of SOSUS messages; and under normal conditions such a request will be approved forthwith.

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CTG 81.2 COMMENT:



RECOMMENDATION:

That COMOCEANSYSLANT and other Group/Unit Commanders work more closely in the future to insure better appreciation of the others' operational working conditions and circumstances.

COMASWFORLANT COMMENT:

Instructions have been promulgated designed to permit and encourage Group/Unit Commanders to readily exercise their forces with the Oceanographic System. (COMASWFORLANT INST 03360.4A and COMASWFORLANT TACNOTE 2-62). Exchange of personnel during such exercises should be a very profitable means of gaining the appreciation desired. Although no formal reports are required, carefully considered recommendations based upon experience gained from these exercises would serve as an additional basis for improving operational procedures.

CTG 81.2 COMMENT:

Lack of sonobuoys (JEZ barriers) prevented full utilization of SOSUS information.

RECOMMENDATION:

That efforts be made to obtain sufficient buoys for future ASW exercises.

COMASWFORLANT COMMENT:

Efforts should continue to be made to improve both the supply and reliability of all expendable stores. This should include obtaining appropriate quantities of long life sonobuoys to permit barrier operations in high probability areas.

CTF 302 COMMENT:

SOSUS information was the first good indication obtained of submarine penetration and permitted concentration of forces in areas of high probability. The information arrived in a more timely manner than in past exercises and was useful in a number of cases in concentrating the ASW forces on the submarine. This information was passed to the air elements in a new reference system introduced at this Headquarters which permitted aircraft to proceed to the probability area with a minimum delay.

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RECOMMENDATION:

The form for the reference system used by this Headquarters in this exercise should be refined, tested and instituted in prosecuting every day contacts. If accepted, both ship and aircraft units should use and become familiar with it for both peacetime and wartime use.

COMASWFORLANT COMMENT:

The need for any system which will permit more timely reaction to SOSUS contacts by units not in direct contact with a Naval Facility is recognized. Continued development of such a system is encouraged.

CTF 302 COMMENT:

Shipboard utilization of information received direct from the SOSUS system was spotty and relatively ineffectual as far as timeliness was concerned. A lack of trained personnel for decoding the profuse mass of SOSUS information precluded the ready availability of the information to the afloat commander so vitally necessary to prosecute the contact.

RECOMMENDATION:

Shore based headquarters should screen this information for applicability to various forces and then promulgate it to the forces directly concerned in a comprehensive, easy-to-digest format.

COMASWFORLANT COMMENT:

Until such time as an expanded SOSUS network is obtained with a greatly improved detection and fix capability, the direct receipt of SOSUS data by individual surface units is of questionable value. However, the ASW carrier group is considered to possess a capability comparable with maritime aircraft for reaction to current SOSUS contact information. Contact data should therefore reach the carrier group as expeditiously as possible, after screening by the C&E NAVFAC for U.S. units and Halifax for Canadian units to insure that only that intelligence applicable to their respective areas of responsibility is relayed.

COMDESDIV 322 COMMENT:

Post exercise analysis of SOSUS information proved it to be of great help in assessing the probability of submarines in our area. However, [REDACTED] and the lack of close support aircraft to assist in investigating SOSUS targets precluded our ability to exploit

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this information to full measure. It is recommended that some means be provided to accelerate dissemination of SOSUS reports, in particular the time at which the target ceases radiating. This information will allow accurate "times late" at DATUM to be computed with an attendant increased probability of detection. Enclosure (1) presents this time delay in prosecution of K-25 on the morning of 11 December.

Requests for amplifying information on SOSUS contacts had to be relayed through line YL6A or YL4 with attendant delay. None of these requests were ever answered by actual receipt of amplifying information.

It is most strongly urged that aircraft be made available for co-ordinated prosecution of these contacts when they are discovered. Had aircraft been available, K-25 could have been prosecuted rapidly. In another instance, on the 10th, our investigation of a SOSUS report took us into a fishing fleet of 15 to 20 small contacts requiring nearly a day to screen carefully without air support. Further, co-ordinated air-surface effort in these situations is essential to prevent A/C from illuminating DD's time and time again.

COMASWFORLANT COMMENT:

The size and shapes of the average SPA and SOSUS EP make application of the classic term "datum" meaningless. The capabilities and limitations of the present SOSUS will rarely permit the immediate exploitation of SOSUS reports by surface units. Rather it is hoped that the system will provide sufficient intelligence to permit orientation of surface forces about the indicated track in a position to respond after localization by prosecuting aircraft or to provide a high probability area for concentrated searches. The aircraft should maintain complete freedom of action until such time as a co-ordinated attack situation develops. This does not preclude the establishment of communications to prevent the interference noted.

CTG 81.9 COMMENT:

Information on target action derived by the SOSUS system would be of great value to the investigative forces. This is particularly true where an ASW Carrier Group is concerned with information as to whether a target is snorkeling, surfaced, submerged, etc., and could be of greater value in determining searches to be employed and EMCON conditions to be used.

RECOMMENDATION:

That information on probable actions of the target, i.e., surfaced, snorkeling, etc., be included in SOSUS messages.

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COMASWFORLANT COMMENT:

Each NAVFAC is required to submit an amplifying report following an initial grid message contact report. If this amplifying report and the SOSUS report do not specify otherwise, the target is believed to be snorkeling if it is reported as a submarine.

CTG 81.9 COMMENT:

Using single sideband or CW, it would appear that a simple grid system similar to that employed for position reporting during the exercise with figures and letters spelled out for CW transmission would have many advantages over the oceanographic grid system. The tactical grid is simpler, is free from compromise, and less subject to garbling. The use of scrambled WORLD GEOREF positions could be utilized for this purpose with the added advantage that the system could be used to contact forces at anytime without the necessity of transmitting a grid message. Code words, in some cases combined with figures, could be used to convey other information such as target and array numbers, starts and stops target types, etc.

RECOMMENDATION:

That probability areas and lines of bearing be given in scrambled WORLD GEOREF.

COMASWFORLANT COMMENT:

The SOSUS Grid is not a complicated system. This grid is employed in daily VP/SOSUS operations with ease and facility by personnel who have familiarized themselves with the message format. The proposed combination of scrambled WORLD GEOREF and code words would result in a more complicated message without the requisite security. In the event of relaxation of security considerations, adoption of a scramble table would combine simplicity with short-time security. In the meantime, the present content of grid messages will be examined in an effort to simplify it by deletion of non-essential information.

CAP DE LA MADELAINE COMMENT:

SOSUS information was virtually useless to CAP DE LA MADELAINE because of poor RCN communications, resulting in missing over 200 broadcast messages including those referring to the SOSUS grid in use. A more useful procedure would be to filter all SOSUS reports ashore, and to send each SAU only those reports concerning the contact being hunted. The significance of USS TUSK (K-17) was obscured by countless messages about other contacts hundreds of miles distant.

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CTF 302 COMMENT:

At no time was it necessary to relay SOSUS information via the broadcast, indicating that little or no difficulty was experienced on the Oceanographic Net, in spite of the propagation difficulties experienced on other circuits. During the initial hours of the exercise, however, MHQ broadcast all SOSUS information received since there was no indication in the message heading that it had been cleared to surface units by other means. In the interest of reducing the number of circuits, particularly CW, to be guarded by surface units, it is recommended that greater use be made of the direct SHELBURNE-MHQ circuit for placing SOSUS information on the fleet broadcast. On activation of the Halifax JASON broadcast, this method of delivery would further reduce encryption/encoding delays.

Delivery times in the relay of SOSUS traffic via SHELBURNE were excellent. Particularly noteworthy were the handling times on traffic from NAVFAC BERMUDA. In view of this, it is recommended that further consideration be given to delivery of SOSUS information via the fleet broadcast in lieu of direct CW circuits, and this alleviating the requirements for surface units to guard additional frequencies.

COMASWFORLANT COMMENT:

Consideration will be given to the delivery of certain SOSUS information via a fleet broadcast. Reduction in the number of CW circuits being guarded and in encryption/decryption delays experienced should be sought, and activation of the LR JASON broadcast fulfills two of the pre-requisites deemed to apply:

An on-line capability.

A broadcast other than that copied by non-exercise forces.

CTG 81.9 COMMENT:

Message headings were often long to the extreme It is recommended that information addressees who receive the SOSUS messages via landline be eliminated from the transmitted heading of the messages.

COMASWFORLANT COMMENT:

SITREP/SITSUM type message, particularly, receive wide distribution both to forces at sea and shore commands. In order to eliminate excessive handling times due to lengthy addrees it appears feasible to adopt "ZEX" instructions (book messages) to eliminate shore-based addrees from message headings being copies afloat.

OFFICE OF THE FLAG OFFICER ATLANTIC COAST

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Subject _____

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So(0) Casflaglant (Bks)	JPL 8/5 JP 8/5/63	4 copies retained

B.F. To _____ Date _____ 000216

R O Y A L C A N A D I A N N A V Y

ESNC: 1650-260/5 Sub 5

Office of the Commander,
Fifth Canadian Escort Squadron,
Fleet Mail Office,
Halifax, N. S.

29 December, 1961

CANUS SLAMEX 1-61

REPORT FROM THE COMMANDER, FIFTH CANADIAN ESCORT SQUADRON

Reference: (a) Commander Anti-Submarine Warfare Force
US Atlantic Fleet's OPCODE 12-61.

Enclosure: (A) Appendix "A" - Communications
(B) Appendix "B" - Fuelling

Submitted for information are the following comments on the subject exercise. Reference (a) does not require a report from this authority, however it is considered that several pertinent points arose which warrant forwarding.

2. Employment of Surface Units.

The principle of employing surface units singly in stations separated by several hours steaming, once a Reinforced Alert is declared, is open to question. Upon receipt of the announcement that CANUS forces would attack all non-friendly submarines transitting the coastal area of North America it was considered that units employed in the surveillance role should have been operated in two ship units. As a general principle it is not accepted that a single escort, regardless of sonar equipment, is an equal match for an aggressive modern battery powered submarine.

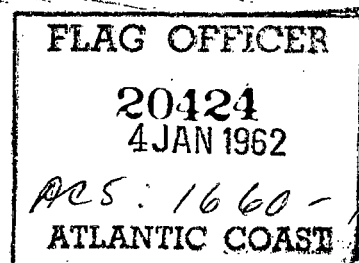
3. Command and Control.

(a) The technique of tactically controlling the anti-SLAM forces from shore by use of the SSB radio was new to the RCN units. The fact that only one RCN ship (COLUMBIA) in Surface Patrol Element Alpha was fitted with SSB equipment appreciably detracted from the shore authority's positive tactical control.

(b) It is concluded that optimum control of anti-SLAM units can be best maintained from shore based headquarters using SSB equipment. (See Appendix (A)).

4. Role of a Squadron Commander in Anti-SLAM Operations.

A Squadron Commander, embarked with his Staff, could be employed to advantage as a stand-by secondary command centre for patrol group ships. To fulfill this role effectively relatively detailed sitsums and appreciations would be required to keep an up to date appreciation compatible with that of the primary control centre available to the Squadron Commander.



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5. Navigation:

(a) It is considered that the use of such Radio Navigation Aids as Loran and Decca, in an exercise such as SLAMEX, is unrealistic. It is however recognized these aids do provide an additional safety factor.

(b) It is recommended that during the next SLAM exercise of this scale all units be instructed not to employ Loran and Decca Radio Aids during a stated period of 48 hours, except in extenuating circumstances, such circumstances being recorded in the narrative.

6. Aircraft Co-Operation.

Sea/Air co-operation, where observed, was generally good throughout the exercise. The use of unencrypted Rainbow Forms is strongly endorsed. It should however be noted that air support was somewhat in excess of the scale which could be expected in wartime.

7. General.

(a) The conduct of the "enemy" submarines in recent SLAMEX's has appeared to become stereotyped in that the launch positions are generally all within very limited submerged transit times from prominent land marks. This is thought to be an unrealistic limitation to place on the exercise submarines.

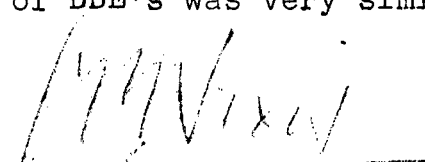
For example had only one third of the "enemy" submarines been instructed to proceed to inshore positions it is likely they would have drawn most of the surface units and the majority of the air support inshore with them. This would leave the deep field relatively clear of opposition for the remainder of the submarines.

(b) The forces likely to be available for employment in the anti-SLAM role on a Simple Alert being declared indicated more A/S units must be found. Possibly re-allocation of forces already in being should be considered.

It is therefore suggested that SSK's should be considered as an integral part of the SLAM defenses. Operating defending submarines in established sanctuaries is not in any way out of line with present concepts. ✓

It is recommended that SSK's be included in the spectrum of defending forces in a future SLAMEX.

(c) Benefit was derived from the overall concept of the exercise as it is thought that the employment of DDE's was very similar to what could be expected in a hot war.


CAPTAIN

Commander, Anti-Submarine Warfare Force,
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Canadian Commander Maritime Atlantic
Senior Canadian Officer Afloat (Atlantic)
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Commander, Destroyer Development Group Two, Newport, R.I.

Copy to: Director, Joint Maritime Warfare School
Commanding Officer, HMCS RESTIGOUCHE,
Commanding Officer, HMCS COLUMBIA
Commanding Officer, HMCS CHAUDIERE
Commanding Officer, HMCS ST CROIX
Commander Fleet Air, Quonset, R.I.

ANNEX "A"

SLAMEX COMMUNICATION REPORT

The following observations are made regarding Communications during CANUS SLAMEX 1-61.

100. General.

It is agreed that NWP 16 and NWIP 16-1 do not need to be provided to Canadian forces for an exercise of this nature.

310. Reporting of Vital Information.

(a) The use of the "Type of Contact" table for initial contact reports is of great assistance. It is recommended that the instructions for the use of this table in conjunction with ACP 165 codewords be adopted as the standard reporting form for initial reports within the RCN and CANMARLANT. It is recommended that the blank form as shown in Tab A to Appendix II to Annex C of the OPORD be reproduced in pad form and provided to all forces.

(b) The situation report form, Tab C to Appendix II to Annex L, for amplifying reports is an excellent method for passing large amounts of information in an abbreviated form. It is recommended that this form be adopted as standard within the RCN and CANMARLANT. It is noted that B4 and B5 are the same; it is assumed this is a typographical error.

434. Authentication and Recognition.

Due to delays in reception of OPORDER changes confusion was caused by the fact that a specific edition of KAA-29 was ordered to be used. It is recommended that future OPORDERS should direct effective editions to be used.

437. Classification.

The practice of sending forms Brown, Tan, and Yellow unclassified is agreed with. This greatly assists crypto centres and is considered to be realistic.

439. Cryptographic Instructions.

The use of True Date Time groups to enable unclassified references to classified messages is a good system which meets security requirements. It is recommended this be considered for continued use within the RCN.

The tactical Adonis channel was not provided to the USS SEVERN. It is recommended that in future exercises this channel be provided to all exercise participants.

440; Jamming and Initiative Deception.

It is regretted that again another exercise has completed without any jamming being experienced. It is essential that surface and air units be made to exercise in the presence of jamming. The development of anti-jamming techniques will never be progressed if forces are not subjected to this harassment.

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450. Call Signs.

The tactical Call Sign system is a good system which lends itself to this type of operation. Its continued use is recommended. It is recommended that Address Indicating Groups be employed to save transmission time. They can be readily established prior to the commencement of the exercise.

460. Frequency Plans.

The frequency plans were generally adequate, however the following observations are made:-

(a) Y11 Canadian Lima Romeo Fleet Broadcast (RATT) - This circuit operated well, serving almost exclusively as an exercise broadcast. During a severe electrical storm in the exercise area many ships missed a large number of messages; however this must be accepted as a difficulty which may be experienced at any time. It is recommended that this circuit be converted to Jason operation at the earliest possible time in order to reduce crypto delays.

(b) Y14 Lantflt ASW Net (CW) - This circuit was generally unusable. It should have served as a net for clearing enemy reports by ASW Commanders, but ships were usually unable to raise the shore station. It is recommended that the shore reception facilities be scrutinized to determine if they are adequate for reliable reception from ships operating in the exercise area.

(c) Y16 ASW SSB Net - This circuit proved invaluable for passing enemy reports and operation messages. The advantages of having this circuit would be greatly increased if all Canadian ships were fitted with SSB equipment. The loan of two SSB 1 equipments to Canadian forces was greatly appreciated. It is recommended that further similar equipments be obtained for interim fitting until the RCN SSB program produces this capability in RCN units. The use of proper voice procedures by all stations on this Net would speed up reliable communications.

(d) The assignment of UHF frequencies for use by RCN ships on tactical nets must be in accordance with RCN crystallization. Two frequencies, 387.4 mcs and 267.4 mcs had to be changed since these crystals are not held by the RCN. (Tab B to Appendix I to Annex C refers).

(e) One tactical CW frequency, 2518 kcs, proved unusable due to interference and 4212 kcs was substituted. (Tab B to Appendix I to Annex C refers).

530. Ship/Shore Communications.

Due to circuit Y14 being unusable, most exercise traffic was passed via Halifax ship/shore. HMCS COLUMBIA acted as Ship/Shore guard ship. This facilitated ship/shore working for the receiving station but did cause delays while messages were passed to COLUMBIA and then relayed ashore. However it is considered that this was the only practical way of handling the large amount of ship/shore traffic. Traffic was screened in COLUMBIA and messages considered to be urgent and important were passed on Y16 (SSB).

ANNEX "J" - E.C.M.

ECM policy for surface units of the patrol group was initially established by the assignment of Spot Numbers for frequencies and radar bands. Coverage of spots was ordered by message according to intercept capabilities. Radar policy was initially unrestricted and left to individual commanding officers. CIC secondary, 2830 kcs, was used for ECM reporting between units. It is considered that many reports from RCN ships were rackets of non-submarine origin. Spurious ECM contact reports from RCN ships are likely to continue until the ship fitting program of the WLR equipment is progressed.

APPENDIX "B"

SLAMEX - FUELLING

1. All the RCN destroyers of TE 81.2.2.0. were fuelled either in Newport or at Halifax. It became apparent on Friday 8 December that high seas and strong winds made fuelling from USS SEVERN imprudent. Fuelling was therefore delayed for 24 hours. By Saturday 9 December the sea conditions had still not improved in the area where units of TE 81.2.2.0 were operating. RCN ships except the frigates were despatched to the nearest port, Newport or Halifax, to fuel. USN ships were fuelled from USS WASP and SEVERN the night of 9/10 December and during the day of 10 December when the weather moderated. None of the RCN ships of TE 81.2.2.0 would have been below 45% burnable furnace fuel by 1200Z 10 December. This percentage does not include approximately 400 barrels of diesel fuel oil available in each ship at that time.
2. It is considered that the RCN ships of TE 81.2.2.0 could have fuelled from SEVERN on 10 December or even 11 December. However, it is realized that it was desirable to have all ships topped up prior to the beginning of Phase IV, 12 December.
3. Further it is considered that it would have been quite acceptable to allow ships of the Fifth Escort Squadron to go as low as 30% in this exercise, provided that at this time SEVERN would have been available to fuel these ships under the suitable conditions which prevailed 9 to 12 December in the exercise area. It has been determined that COLUMBIA could have arrived in Halifax without fuelling at all during the exercise and still have had 25% furnace fuel oil remaining, plus untapped diesel fuel oil.
4. It is recommended that operational authorities be made fully aware of the capabilities of the RESTIGOUCHE class with respect to refuelling requirements.

R O Y A L C A N A D I A N N A V Y

ESNC: 1650-260/5 Sub 5

Office of the Commander,
Fifth Canadian Escort Squadron,
Fleet Mail Office,
Halifax, N. S.

29 December, 1961

CANUS SLAMEX 1-61

REPORT FROM THE COMMANDER, FIFTH CANADIAN ESCORT SQUADRON

Reference: (a) Commander Anti-Submarine Warfare Force
US Atlantic Fleet's OPCODE 12-61.

Enclosure: (A) Appendix "A" - Communications
(B) Appendix "B" - Fuelling

Submitted for information are the following comments on the subject exercise. Reference (a) does not require a report from this authority, however it is considered that several pertinent points arose which warrant forwarding.

2. Employment of Surface Units.

The principle of employing surface units singly in stations separated by several hours steaming, once a Reinforced Alert is declared, is open to question. Upon receipt of the announcement that CANUS forces would attack all non-friendly submarines transitting the coastal area of North America it was considered that units employed in the surveillance role should have been operated in two ship units. As a general principle it is not accepted that a single escort, regardless of sonar equipment, is an equal match for an aggressive modern battery powered submarine.

3. Command and Control.

(a) The technique of tactically controlling the anti-SLAM forces from shore by use of the SSB radio was new to the RCN units. The fact that only one RCN ship (COLUMBIA) in Surface Patrol Element Alpha was fitted with SSB equipment appreciably detracted from the shore authority's positive tactical control.

(b) It is concluded that optimum control of anti-SLAM units can be best maintained from shore based headquarters using SSB equipment. (See Appendix (A)).

4. Role of a Squadron Commander in Anti-SLAM Operations.

A Squadron Commander, embarked with his Staff, could be employed to advantage as a stand-by secondary command centre for patrol group ships. To fulfill this role effectively relatively detailed sitsums and appreciations would be required to keep an up to date appreciation compatible with that of the primary control centre available to the Squadron Commander.

- 2 -

5. Navigation:

(a) It is considered that the use of such Radio Navigation Aids as Loran and Decca, in an exercise such as SLAMEX, is unrealistic. It is however recognized these aids do provide an additional safety factor.

(b) It is recommended that during the next SLAM exercise of this scale all units be instructed not to employ Loran and Decca Radio Aids during a stated period of 48 hours, except in extenuating circumstances, such circumstances being recorded in the narrative.

6. Aircraft Co-Operation.

Sea/Air co-operation, where observed, was generally good throughout the exercise. The use of unencrypted Rainbow Forms is strongly endorsed. It should however be noted that air support was somewhat in excess of the scale which could be expected in wartime.

7. General.

(a) The conduct of the "enemy" submarines in recent SLAMEX's has appeared to become stereotyped in that the launch positions are generally all within very limited submerged transit times from prominent land marks. This is thought to be an unrealistic limitation to place on the exercise submarines.

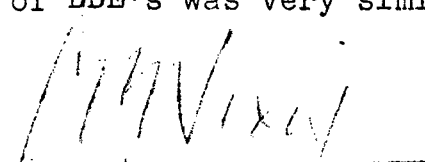
For example had only one third of the "enemy" submarines been instructed to proceed to inshore positions it is likely they would have drawn most of the surface units and the majority of the air support inshore with them. This would leave the deep field relatively clear of opposition for the remainder of the submarines.

(b) The forces likely to be available for employment in the anti-SLAM role on a Simple Alert being declared indicated more A/S units must be found. Possibly re-allocation of forces already in being should be considered.

It is therefore suggested that SSK's should be considered as an integral part of the SLAM defenses. Operating defending submarines in established sanctuaries is not in any way out of line with present concepts.

It is recommended that SSK's be included in the spectrum of defending forces in a future SLAMEX.

(c) Benefit was derived from the overall concept of the exercise as it is thought that the employment of DDE's was very similar to what could be expected in a hot war.


CAPTAIN

Commander, Anti-Submarine Warfare Force,
U.S. Atlantic Fleet, Norfolk, Virginia, USA.
Canadian Commander Maritime Atlantic
Senior Canadian Officer Afloat (Atlantic)
Flag Officer Atlantic Coast
Commander, Destroyer Development Group Two, Newport, R.I.

Copy to: Director, Joint Maritime Warfare School
Commanding Officer, HMCS RESTIGOUCHE,
Commanding Officer, HMCS COLUMBIA
Commanding Officer, HMCS CHAUDIERE
Commanding Officer, HMCS ST CROIX
Commander Fleet Air, Quonset, R.I.

ANNEX "A"

SLAMEX COMMUNICATION REPORT

The following observations are made regarding Communications during CANUS SLAMEX 1-61.

100. General.

It is agreed that NWP 16 and NWIP 16-1 do not need to be provided to Canadian forces for an exercise of this nature.

310. Reporting of Vital Information.

(a) The use of the "Type of Contact" table for initial contact reports is of great assistance. It is recommended that the instructions for the use of this table in conjunction with ACP 165 codewords be adopted as the standard reporting form for initial reports within the RCN and CANMARLANT. It is recommended that the blank form as shown in Tab A to Appendix II to Annex C of the OPORD be reproduced in pad form and provided to all forces.

(b) The situation report form, Tab C to Appendix II to Annex L, for amplifying reports is an excellent method for passing large amounts of information in an abbreviated form. It is recommended that this form be adopted as standard within the RCN and CANMARLANT. It is noted that B4 and B5 are the same; it is assumed this is a typographical error.

434. Authentication and Recognition.

Due to delays in reception of OPORDER changes confusion was caused by the fact that a specific edition of KAA-29 was ordered to be used. It is recommended that future OPORDERS should direct effective editions to be used.

437. Classification.

The practice of sending forms Brown, Tan, and Yellow unclassified is agreed with. This greatly assists crypto centres and is considered to be realistic.

439. Cryptographic Instructions.

The use of True Date Time groups to enable unclassified references to classified messages is a good system which meets security requirements. It is recommended this be considered for continued use within the RCN.

The tactical Adonis channel was not provided to the USS SEVERN. It is recommended that in future exercises this channel be provided to all exercise participants.

440; Jamming and Initiative Deception.

It is regretted that again another exercise has completed without any jamming being experienced. It is essential that surface and air units be made to exercise in the presence of jamming. The development of anti-jamming techniques will never be progressed if forces are not subjected to this harassment.

.....2/

- 2 -

450. Call Signs.

The tactical Call Sign system is a good system which lends itself to this type of operation. Its continued use is recommended. It is recommended that Address Indicating Groups be employed to save transmission time. They can be readily established prior to the commencement of the exercise.

460. Frequency Plans.

The frequency plans were generally adequate, however the following observations are made:-

(a) Y11 Canadian Lima Romeo Fleet Broadcast (RATT) - This circuit operated well, serving almost exclusively as an exercise broadcast. During a severe electrical storm in the exercise area many ships missed a large number of messages; however this must be accepted as a difficulty which may be experienced at any time. It is recommended that this circuit be converted to Jason operation at the earliest possible time in order to reduce crypto delays.

(b) Y14 Lantflt ASW Net (CW) - This circuit was generally unusable. It should have served as a net for clearing enemy reports by ASW Commanders, but ships were usually unable to raise the shore station. It is recommended that the shore reception facilities be scrutinized to determine if they are adequate for reliable reception from ships operating in the exercise area.

(c) Y16 ASW SSB Net - This circuit proved invaluable for passing enemy reports and operation messages. The advantages of having this circuit would be greatly increased if all Canadian ships were fitted with SSB equipment. The loan of two SSB 1 equipments to Canadian forces was greatly appreciated. It is recommended that further similar equipments be obtained for interim fitting until the RCN SSB program produces this capability in RCN units. The use of proper voice procedures by all stations on this Net would speed up reliable communications.

(d) The assignment of UHF frequencies for use by RCN ships on tactical nets must be in accordance with RCN crystallization. Two frequencies, 387.4 mcs and 267.4 mcs had to be changed since these crystals are not held by the RCN. (Tab B to Appendix I to Annex C refers).

(e) One tactical CW frequency, 2518 kcs, proved unusable due to interference and 4212 kcs was substituted. (Tab B to Appendix I to Annex C refers).

530. Ship/Shore Communications.

Due to circuit Y14 being unusable, most exercise traffic was passed via Halifax ship/shore. HMCS COLUMBIA acted as Ship/Shore guard ship. This facilitated ship/shore working for the receiving station but did cause delays while messages were passed to COLUMBIA and then relayed ashore. However it is considered that this was the only practical way of handling the large amount of ship/shore traffic. Traffic was screened in COLUMBIA and messages considered to be urgent and important were passed on Y16 (SSB).

ANNEX "J" - E.C.M.

ECM policy for surface units of the patrol group was initially established by the assignment of Spot Numbers for frequencies and radar bands. Coverage of spots was ordered by message according to intercept capabilities. Radar policy was initially unrestricted and left to individual commanding officers. CIC secondary, 2830 kcs, was used for ECM reporting between units. It is considered that many reports from RCN ships were rackets of non-submarine origin. Spurious ECM contact reports from RCN ships are likely to continue until the ship fitting program of the WLR equipment is progressed.

APPENDIX "B"

SLAMEX - FUELLING

1. All the RCN destroyers of TE 81.2.2.0. were fuelled either in Newport or at Halifax. It became apparent on Friday 8 December that high seas and strong winds made fuelling from USS SEVERN imprudent. Fuelling was therefore delayed for 24 hours. By Saturday 9 December the sea conditions had still not improved in the area where units of TE 81.2.2.0 were operating. RCN ships except the frigates were despatched to the nearest port, Newport or Halifax, to fuel. USN ships were fuelled from USS WASP and SEVERN the night of 9/10 December and during the day of 10 December when the weather moderated. None of the RCN ships of TE 81.2.2.0 would have been below 45% burnable furnace fuel by 1200Z 10 December. This percentage does not include approximately 400 barrels of diesel fuel oil available in each ship at that time.
2. It is considered that the RCN ships of TE 81.2.2.0 could have fuelled from SEVERN on 10 December or even 11 December. However, it is realized that it was desirable to have all ships topped up prior to the beginning of Phase IV, 12 December.
3. Further it is considered that it would have been quite acceptable to allow ships of the Fifth Escort Squadron to go as low as 30% in this exercise, provided that at this time SEVERN would have been available to fuel these ships under the suitable conditions which prevailed 9 to 12 December in the exercise area. It has been determined that COLUMBIA could have arrived in Halifax without fuelling at all during the exercise and still have had 25% furnace fuel oil remaining, plus untapped diesel fuel oil.
4. It is recommended that operational authorities be made fully aware of the capabilities of the RESTIGOUCHE class with respect to refuelling requirements.

CONFIDENTIAL

DEC 29 1961

EXERCISE SLAMEX 1961

Enclosure: (A) DNN: "C" 1920-DDE-216
dated 18 December, 1961.

Forwarded.

Original Signed by
R. RICHARDS LCDR, RN
REAR ADMIRAL

The Canadian Maritime Commander, Atlantic.

Copy to: The Commanding Officer,
HMCS HURON.

ORIG: A/SEC/LCDR RICHARDS/MV

CONFIDENTIAL

DEC 29 1961

(Copy sent to
CANCOMET)

000228

DHN: "C" 1920-DDE-216.

Commanding Officer,
HMCS HURON,
c/o Fleet Mail Office,
Halifax, N.S.

18 December, 1961.

EXERCISE SLAMEX - 1961

Reference: (a) Operation Order 12-61 (CANUS SLAMEX 1-61).

Enclosure: (A) Narrative of Events of HMCS HURON
during Exercise "Slamex".

Submitted in accordance with Annex "R" to reference
(a) is Enclosure (A).

COMMANDER, RCN.

The Flag Officer Atlantic Coast,

Copy to: Commander Anti Submarine Warfare Force,
United States Atlantic Fleet,
U.S. Naval Base,
Norfolk, Virginia, U.S.A.

ACS 16607

R.M.C. ... ST. ... (1988 21-1)
... "SLAVE" NARRATIVE.
(ALL TIMES 2000)

EXERCISE SLAMEX

4 DEC 61

1915 SLIPPED AND PROCEEDED FROM IRELAND ISLAND BERMUDA
TO RENDEZVOUS WITH TG 302.0 FOR PHASE ONE. COURSE
AND SPEED AS REQUISITE TO BE IN POSITION 41 N 61 W
BY 062359 Z. IN COMPANY WITH H.M.C.S. HAIDA.

5 DEC 61

ENROUTE EXERCISE AREA

0040 BATHY ISOTHERMAL TO 450 FEET WITH A SURFACE TEMPERATURE
OF 74 DEGREES
0825 POSITION 30.3 N 65.8 W
1600 BATHY 00667 15655 12650 40650
1800 POSITION 3557 N 6532 W
2230 POSITION 3655 N 6450 W

6 DEC 61

ENROUTE EXERCISE AREA

1000 BATHY 00725 11725 20710 30705 38690 42690 45620
1210 CAP DE LA MADELEINE AND CHAUDIERE IDENTIFIED ON
STARBOARD BEAM
1806 CLOSED BONAVENTURE FOR JACKSTAY TRANSFER
1816 COMPLETED TRANSFER. TOOK RESCUE STATION ASTERN OF
BONAVENTURE
1825 ORDERED TO PATROL AREA R3
1955 IN AREA R3 COMMENCED PATROL
2105 SKUNK H-336-9.4 CO 100 Sp 16
2222 SKUNK H IDENTIFIED AS H.M.C.S. ATHABASKAN
2327 COMMENCED RADAR SILENCE DIAGRAM.6C AT STANDEY, SPERRY
OFF FOR 2 MINUTES EVERY 8

7 DEC 61

PATROLLING AREA R3

0133 POSITION 4016 N 6131 W
0208 A/CO 140 Sp 10
0226 A/DO 060 Sp 10
0356 A/CO 070 Sp 10
0400 BATHY 00648 35648 45554
0410 POSITION 4019 N 6112 W
0644 A/CO 150 Sp 10
0702 A/CO 240 Sp 10
0710 POSITION 4020 N 6029 W
1053 POSITION 4004 N 6124 W
1109 A/CO 020 Sp 10
1119 Sp 13
1130 POSITION 4010 N 6127.5 W
1200 RACKET BRG 333(B) PRF 600 ARP 6
1262 RACKET CLASSIFIED AS APS 31 OR 33 USN A/C
POSITION 4018 N 6126 W
1230 RACKET 015(B) PRF 900 ARP 6 CLASSIFIED A/C
1303 POSITION 4030.2 N 6118 W
1312 A/CO 040 Sp 13
1317 RACKET 3-184 PRF 600 ARP 2 MIN 6 SEC
1318 RACKET 4-285 PRF 600 ARP 12
RACKET 5-285(B) PRF 1000
1325 RACKET 6-195(B) PRF 700 to 900 ARP 12
1413 POSITION 4047 N 6110.5 W
1414 HE BRG DEAD AHEAD 104 DEGREES
1415 HE 020 A/CO 020 Sp 15

EXERCISE SLAMX

7 DEC 61 (CONT)

1417 SENT BEMY CONTACT REPORT
1425 A/CO 230
1451 A/CO 330
1455 SONAR CONTACT RED 10-400 YARDS
1456 SONAR CONTACT 330-200 YARDS
1505 A/CO 020
1506 A/CO 014
1510 RACKET 011(B) PRF 1000 ARP 5.5 RANGE MEDIUM POSSIBLE A/C
1545 BATHY 00690 30690 32660 35650 40635 41630
POSITION 4053 N 6110 W
1555 Sp 25
1610 RACKET 006 (B) PRF 1000 SPERRY RADAR
1623 RADAR SILENCE LIFTED
1640 BONAVENTURE 317-13.4 CO 120 Sp 10
1650 A/CO 310 Sp 25
1655 TOOK STATION 120 BONAVENTURE 1 MI
1701 CO AND Sp AS REQUISITE FOR HELICOPTER TRANSFER
1706 RESUMED PATROL
1728 RESUMED RADAR SILENCE DIAGRAM
1812 A/CO 130 Sp 20
1819 ENTERED AREA R3 Sp 10
2000 Sp 13
2020 POSITION 4027 N 6040 W
2115 BOTH RADARS TRANSMITTING DUE TO WEATHER
2210 COMMENCED PHASE THREE AT 072100Z
POSITION 4012 N 6053 W
2213 Sp 13
2224 BATHY 00620 28665 30663 35660 36640 37635 39620
40615 43610
2325 PORT ENGINE SHUT DOWN FOR REPAIRS. Sp 10
2340 A/CO 300

8 DEC 61

0007 ILLUMINATED BY TRACKER A/C
0012 RESUMED RADAR SILENCE POLICY
0030 RACKET 9-304(B) PRF 1000 ARP 5 to 6
0120 BOTH RADARS TRANSMITTING
0220 RESUMED RADAR SILENCE DIAGRAM
0230 A/CO 020 Sp 17
0323 RACKET 10-117(B) PRF 600 ARP 2 POSSIBLE SUBMARINE
0623 A/CO 027
0625 LIFTED RADAR SILENCE DUE TO WEATHER
0704 A/CO 055
0707 A/CO 065 Sp 20 . BONAVENTURE AND ESCORTS 103-15 MI
CO 345 Sp 14
0717 BONAVENTURE A/CO 275 Sp 10. A/CO TO INTERCEPT
0750 JOINED BONAVENTURE IN A 304 SCREEN IN STATION 3.
AVIS 275 CO 275 Sp 16. BONAVENTURE BRG 170-5900 YDS
0830 WHITE FLARE REPORTED BY BONAVENTURE 103-17 MI
0905 POSITION 4134.3 N 6130.5 W
0928 SKUNK V-278-19.5 MI CO 117 Sp 14
0944 SKUNK V IDENTIFIED AS US^S SEVERN BY OCW
1048 CO AND SPEED AS REQUIRED FOR FUELLING
1203 COMMENCED FUELLING
1324 COMPLETED FUELLING
1325 ENROUTE DATUM KILO ONE 019-68 MI
1350 ORDERED TO STATION 3000 YDS HAIDA'S STD BEAM CO 030
Sp 16
1402 Sp 20
1532 A/CO 020
1615 Sp 12
1626 Sp 20

EXERCISE SLAMEX

9 DEC 61 (CONT)

1630 BATHY 00523 16523 20570 25576 30570 31545 35550 40555
1730 A/CO 315
1744 Sp 15
1800 SEARCH TURN TO 270
1805 SONAR CONTACT 330-600 YDS
1806 SONAR CONTACT CLASSIFIED WAKE
1823 SEARCH TURN TO 000
1838 SONAR CONTACT 165-1800 YDS POSSIBLE
1839 SONAR CONTACT CLASSIFIED NON SUBMARINE, A/CO 010
1843 A/CO 210
1847 HAIDA INSTITUTED TOMATO SEARCH AXIS 220
1906 BROKE OFF TOMATO SEARCH
1908 FORMED ON A LOOSE LINE OF BEARING AT 5000 YDS Sp 15
TO SWEEP THROUGH AREA
1950 HAIDA DETACHED TO HALIFAX FOR FUEL. CONTINUED SEARCH.
2110 ARGUS JOINED FROM EAST. CALLSIGN HOTEL ONE FOXTROT.
AUTHENTICATION CORRECT. ARGUS ORDERED ON A 4M SEARCH
2116 ARGUS ON PATROL
2135 ARGUS COMPLETED PATROL. ORDERED ON 4M SEARCH IN
ADJACENT SECTOR.
2136 ARGUS ON PATROL
2310 ARGUS COMPLETED PATROL. ORDERED 10 M SEARCH ON BRG
330
2320 A/CO 000
2322 ARGUS ON PATROL

9 DEC 61

0027 ARGUS COMPLETED PATROL. ORDERED 10M ON BRG 030
0038 ARGUS ON PATROL
0140 ARGUS COMPLETED PATROL. ORDERED 10 M ON BRG 140
0215 ORDERED TO PATROL NORTHWARD OF BONAVENTURE REMAINING
WITHIN 15 MI. BONAVENTURE REMAINING WITHIN 50 MI K1
0400 POSITION 4233.3 N 6214.8 W BATHY LAYER DEPTH 80 FEET
ESTIMATED SONAR RANGE 1200 YDS
0655 POSITION 4231 N 6230 W
0901 MK 10 TABLE U/S
1007 POSITION 4234.5 N 6208 W
1200 POSITION 4233 N 6208 W
1406 MK 10 TABLE OPERATING
1600 POSITION 4223 N 6150 W
1625 BATHY 00482 19482 21410 23380 30400 45442
1730 POSITION 4209 N 6159 W
1844 TOOK STATION ON BONAVENTURE'S PORT BEAM AT 10 MI.
CO 140. POSITION 4154 N 6204 W
2130 BATHY 00601 30601 33625 35608 42605
POSITION 4134 N 6154 W

10 DEC 61

0040 POSITION 4139 N 6218 W
0340 POSITION 4210 N 6214 W
0430 ENTERED AREA KILO 18
0530 BATHY 00455 09455 11515 13520 15520 17525 18525
20480 24470 25475 27500 30505 32475 35475 36500
40500 42 510
0950 POSITION 4246 N 6220 W
1200 POSITION 4224 N 6206 W
1300 POSITION 4222 N 6200 W
1310 ARGUS REPORTS POSSIBLE SUBMARINE 85 MI SW PRESENT
POSITION
1435 COMMENCED RADAR SILENCE DIAGRAM
1440 COMMENCED NARROW WEAWE
1500 POSITION 4248 N 6219 W

EXERCISE SLAMEX

10 DEC 61

1740 RACKET 3- NO BRG. PRF 500 ARP 10 CLASSIFIED POSSIBLE
SUBMARINE. RANGE FAR.
1930 TOOK LIFE GUARD STATION ASTERN OF BONAVENTURE
2011 COMMENCED FUELLING FROM BONAVENTURE
2127 TOOK PLANE GUARD DUTIES.
2130 POSITION 4302 N 6203 W TOOK STATION 270 BONAVENTURE
2 MI
2250 TOOK PLANE GUARD STATION
2320 TOOK STATION 330 BONAVENTURE 5 MI
2325 TOOK STATION 270 BONAVENTURE 2 MI
2326 POSITION 4316 N 6152 W
2347 TOOK STATION 330 BONAVENTURE 5 MI

11 DEC 61

0019 SONAR CONTACT 355-1200 YDS. POSSIBLE SUBMARINE
0028 CONTACT CONFIRMED AS SUBMARINE
0030 LOST CONTACT
0035 REGAINED CONTACT 270- 1000
0043 ESTABLISHED DATUM ECHO
0059 LOST CONTACT
0110 A/C COMMENCED 3000 YD MADTRAP ABOUT DATUM
0126 A/C ON TOP 348-4700 YDS
0128 A/C COLD
0144 MADMARK FROM A/C-199-2900 YDS.
0145 A/CO 180
0147 A/C REPORTS LAST MADMARK NON SUBMARINE
0155 ORDERED TO REJOIN BONAVENTURE
0245 TOOK PLANE GUARD STATION
0345 A/CO 200 Sp 20 TO PASS THROUGH DATUM
0517 IROQUOIS JOINING TO INVESTIGATE DATUM
0525 IROQUOIS ASSUMED SAU COMMANDER
0555 COMMENCED EXPANDING SQUARE SEARCH AROUND DATUM
0615 REJOINED BONAVENTURE FOR PLANE GUARD DUTIES
0652 TOOK RESCUE DESTROYER STATION
0720 ORDERED TO STATION 100 BONAVENTURE 5 MI
1012 POSITION 4242 N 6148 W
1032 ORDERED TO STATION 100 BONAVENTURE 1 MI
1046 ORDERED TO STATION 280 BONAVENTURE 1 MI
1103 TOOK STATION 1000 YDS ASTERN BONAVENTURE
1130 POSITION 4228 N 6154 W
1145 GO AND SPEED AS REQUISITE TO RECEIVE HELICOPTER
1250 TOOK STATION 270 BONAVENTURE 2 MI
1415 POSITION 4302 N 6155 W
1850 IROQUOIS TOOK UP RESCUE DESTROYER STATION
2038 TOOK RESCUE DESTROYER STATION
2230 POSITION 4251 N 6208 W
2316 TOOK STATION 140 BONAVENTURE 2 MI
2340 COMMENCED NARROW WEAVE

12 DEC 61

0200 POSITION 4308 N 6136 W
0234 TOOK RESCUE DESTROYER STATION
0358 POSITION 4320 N 6118 W
0400 TOOK STATION 110 BONAVENTURE 2 MI CO 200 Sp 15
BATHY 00450 19450 21400 22370 25350 30340 35335
38350 40362 42380 45380 POSITION 4313 N 6120 W
0710 TOOK RESCUE DESTROYER STATION

EXERCISE SLAMX

12 DEC 61 (CONT)

1030 POSITION 4158 N 6156 W
1048 TOOK RESCUE DESTROYER STATION
1110 A/CO 020 Sp 14
1125 A/CO 340 Sp 17
1130 TOOK RESCUE DESTROYER STATION
1200 POSITION 4205 N 6158 W
1258 COMMENCED FUELLING
1405 POSITION 4224 N 6208 W
1445 TOOK RESCUE DESTROYER STATION
1600 POSITION 4240.5 N 6202 W
1615 BATHY 00440 10445 11440 15355 20335 25330 30340 35370
38440 40405 42450 45480
1830 POSITION 4253 N 6134 W
2003 SONAR CONTACT 320-1200 YDS. ALTERED TOWARDS
2005 CONTACT CLASSIFIED NON SUBMARINE.
2038 TOOK STATION 095 BONAVENTURE 5 MI CO 325 Sp 15
COMMENCED BROAD WEAVE
2203 COMMENCED RADAR SILENCE DIAGRAM
2210 BATHY 00513 16508 19480 20440 21430 25430
2229 POSITION 4320 N 6128 W
2306 TOOK UP RESCUE DESTROYER STATION
2340 HOTSHOT REPORTED IN POSITION 4315 N 6628 W AT 122232Z
2343 TOOK STATION 325 BONAVENTURE 5 MI.

13 DEC 61

0005 POSITION 4304 N 6145 W
0038 COMMENCED NARROW WEAVE
0110 ATHABASKAN ASSUMED DUTIES OF SCREEN COMMANDER
0113 TOOK STATION 3 ON 303 SCREEN AXIS 055 CO 055 Sp 16
0152 REORIENTED SCREEN AXIS TO 330. GUIDE BRG 200-4700
YDS. A/CO 330
0200 POSITION 4310 N 6154 W
0216 COMMENCED BROAD WEAVE
0230 A/CO 160. ASSUMED PLANEGUARD DUTIES
0345 A/CO 340. TOOK STATION 1 ON 304 SCREEN AXIS 340
0630 Sp 15
0646 TOOK RESCUE DESTROYER STATION. CO 170 Sp 19
0745 TOOK STATION ON 303 SCREEN AXIS 270 GUIDE BRG 123-
3700 YDS.
0757 ORDERED TO JOIN HAIDA FOR SEARCH THROUGH A/C DATUM
0820 ORDERED TO CARRY OUT TOMATO SEARCH AXIS 000 Sp 15
0858 COMMENCED NARROW WEAVE
0955 ORDERED TO RETURN TO STATION
1035 TOOK STATION 4 ON 304 SCREEN AXIS 090 CO 090 Sp 15
1055 REORIENTED SCREEN AXIS TO 000 A/CO 000 Sp 15
1058 COMMENCED BROAD WEAVE
1200 REORIENTED SCREEN AXIS TO 090
1208 TOOK STATION 4 ON 304 SCREEN
1306 POSITION 4427 N 6246 W
1355 REORIENTED SCREEN AXIS TO 235 TOOK STATION 3 GUIDE
BRG 130-5900 YDS
1458 POSITION 4425 N 6248 W
1640 REORIENTED SCREEN AXIS TO 315. GUIDE BRG 270-5900 YDS
A/CO 315
1654 A/CO 250 Sp 12
1705 BATHY 00465 06465 10463 15470 16474 17410 19420 20410
22415 24385 27373 31370 35370 40380
1715 SONAR CONTACT CLASSIFIED POSSIBLE
1725 CONTACT CLASSIFIED NON SUBMARINE
1735 CLOSED BONAVENTURE
1805 DETACHED AND PROCEEDED TO NEW YORK.

s.15(1)

SECRET

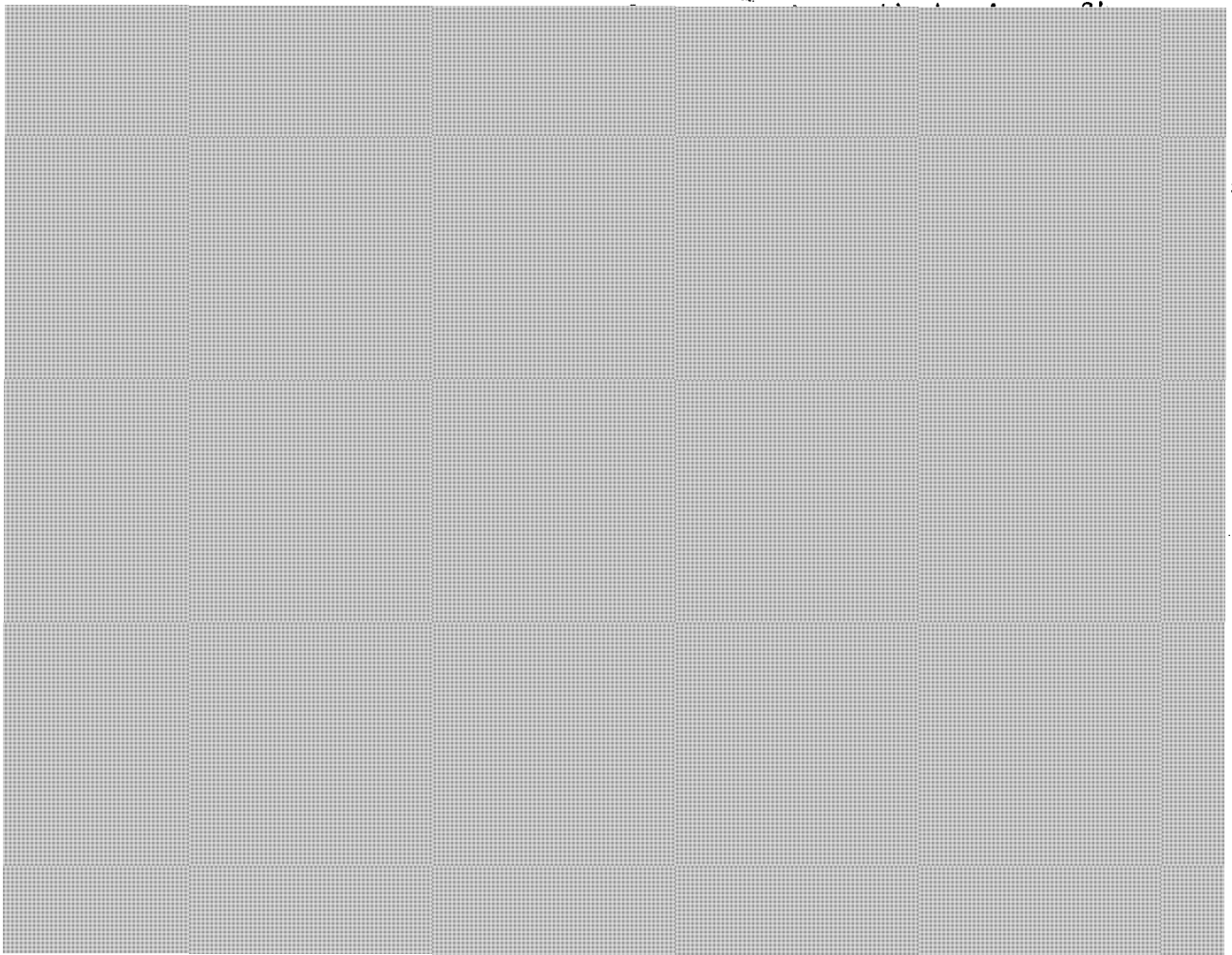
MCACS: 1660-1

23 November 1961

EXERCISE SLAMEX 1/61

Enclosure: (A) Station Indicator Words

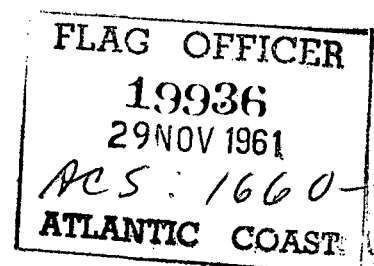
It is intended that the following procedure be tried for the duration of SLAMEX 1/61 in the interests of reducing time late to either datum or line of bearing. The procedure described will be used only by CTF 302 to pass search information to aircraft operating under his direct control. It is not to be used in reciprocal by mobile forces.



The Officer Commanding, RCAF Station Greenwood
The Officer Commanding, RCAF Station Summerside
The Commanding Officer, HMCS Shearwater

Copy To: The Air Officer Commanding Maritime Air Command
The Flag Officer Atlantic Coast ✓

SECRET

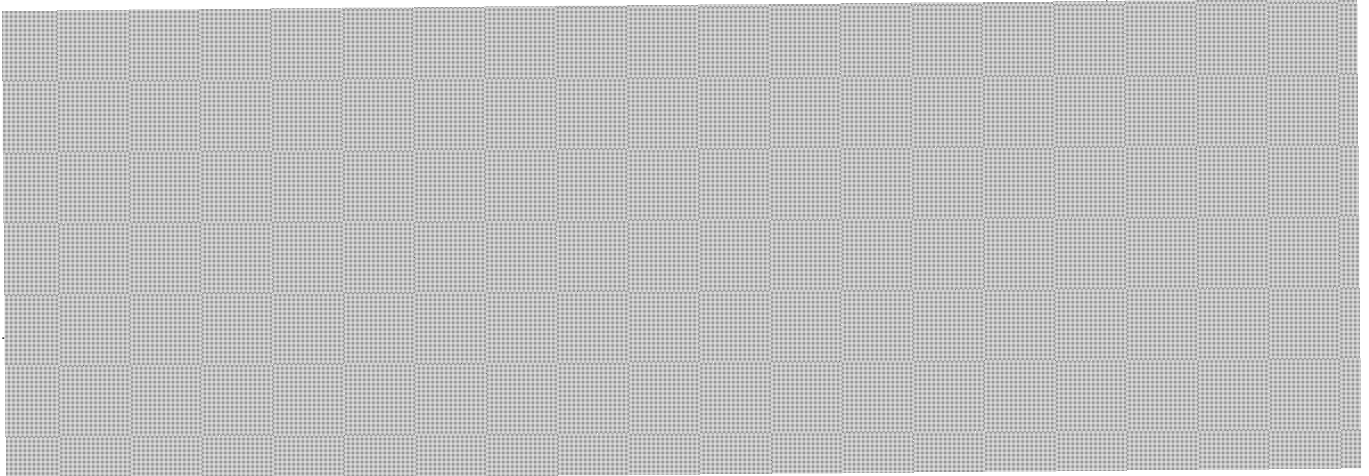


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SECRET

- 2 -

Example (3):



4. Target frequency information will continue to be passed in accordance with existing methods.

[Handwritten signature]
REAR ADMIRAL

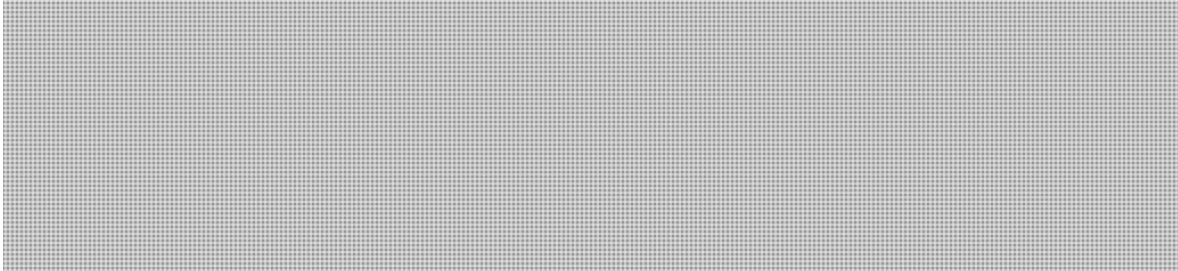
SECRET

s.15(1)

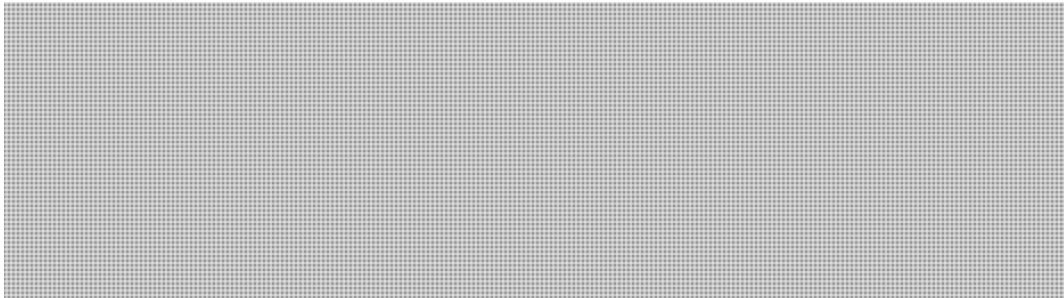
SECRET

Enclosure (A) to MCACS: 1660-1
dated 23 November 1961

STATION KING INDICATOR WORDS



STATION VICTOR INDICATOR WORDS



STATION FOX INDICATOR WORDS



SECRET