LINGUISTICS IN VESSEL TRAFFIC SERVICES
An investigation of the communication problems in inshore waters

Submitted by
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to the University of Exeter
as a thesis for the degree of Doctor of Philosophy in
APPLIED LINGUISTICS
in the Faculty of Arts.
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I certify that all material in this thesis which is not my own work has been identified and that no material is included for which a degree has previously been conferred upon me.

Addendum to Declaration

Except in reference to the bibliography items listed below, and to which reference is made in the text, the concept and execution of all stages are my work.

In the listed bibliography items, assistance has been given by the persons identified in the text, working under my direction or in an editorial capacity.

1. COST 301 (1986)
2. COST 301 (1987)
3. COST 301 (1987) (B)
5. Weeks (1984) (B)

Frederick Fowler Weeks
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Summary

The ever-increasing sophistication of petroleum derivatives and dangerous and noxious chemicals carried by sea has resulted in a corresponding increase in the precautions taken by coastal states.

High in importance amongst these precautions has been the introduction of Vessel Traffic Services, constituting shore-based organizations fulfilling a variety of functions, often based on advanced radar techniques.

The kernel of any such system is communication, chiefly between shore and ship, ship and shore, but including communication ship to ship. Without such communications information cannot be passed, and advice and instructions cannot be given.

This thesis describes the theoretical and practical linguistic research and application that has taken place in the field of Vessel Traffic Services. It offers solutions to existing and predicted communication events, chiefly by voice, but including concepts embodying VDU techniques. Further, it describes practical trials that have been carried out, and procedures which have been instituted as a result of the overall research detailed herein.

The Thesis chapters are summarised below.
Chapter 1:

Describes the objectives of the study, and relates these objectives to existing work and practical considerations. It describes the design criteria used, and relates them to existing conceptual standards in computer-orientated language.

Chapter 2:

Describes the extra-linguistic influences on VTS communications, including procedural and operational constraints, local, national and international law and other such factors affecting the freedom of communicative processes.

Chapter 3:

Describes factors influencing a VTS centre, including the perceived functions of that VTS, and the constraints placed on those functions by the infrastructure. It explains how information content, quality and flow are interdependent with such functions.

Chapter 4:

Describes how messages may best be formed to give optimum results in the VTS context, using VHF Radio. It describes how the Seaspeak system is designed to fulfil this purpose, and how it may be applied to the task concerned. It describes how successful trials of the system have been performed.
Chapter 5:

Describes in detail how special message types may be used in VTS communications, and how different levels of messages may be used for different purposes. It describes special message formats which optimise communications in specific circumstances, and gives practical examples of how these may be utilised.

Chapter 6:

Describes the trials that have been carried out of the proposals postulated, in a variety of circumstances appropriate to the complexity of the overall problem. It describes how different levels of trials were employed, and offers conclusions on the findings of the whole study.
CHAPTER 1 - INTRODUCTION

1.1 General

Most of the large ports of the world, and many of the places at which major concentrations of shipping occur, are provided with organizations which aid the flow of traffic. These organizations are collectively known as Vessel Traffic Services (VTS).

"A VTS is any service, implemented by a competent authority, designed to improve safety and efficiency of traffic and the protection of the environment. It may range from the provision of simple information messages to extensive management of traffic within a port or waterway" 

(IMO A578/14)

Such VTS may be divided into two main categories:

(a) Those which deal with coastal, passing, traffic and

(b) those which deal with traffic which commences or terminates its voyage within the jurisdiction of the VTS.
Whichever category the VTS considered falls within, it will fulfil the common functions of data acquisition, data processing, data creation and data selection (prioritisation).

Both in the process of data acquisition and in the process of the transmission of the prioritised selected data the VTS will rely heavily on communications.

"The key element in the VTS process of reducing risk is an exchange of relevant information. The effectiveness of VTS is in direct proportion to the quality and accuracy of the information exchanged with the mariner, and the quality and accuracy with which potential conflicts are assessed."

(Canadian Coastguard 1984: 12)

1.2 Objective of the Study

It is the objective of this study to produce a series of suggested solutions to existing and predicted communication problems in inshore waters, specifically those which take place between Vessel Traffic Services and ships.
The study is based on existing and planned communication equipment, and makes use of linguistic techniques and devices, operating within all the constraints imposed by practical and legislative considerations.

The proposals made and solutions offered have been fully tested in operational use, and are offered as a method of reducing the operational communications burden.

"The present situation concerning data exchange in the European maritime field is characterised by an unco-ordinated number of existing and planned data links. Most of them have been developed by different users on a national or local basis.

The lack of co-ordination and co-operation between the above data links has the following disadvantages:

(1) Ships have to make the same reports to several VTS as they pass. This is an unnecessary burden to the ships and not in accordance with IMO recommendations."

(COST 301 1986: 2)

1.3 Relation to existing work

The evolution of this study is closely coupled to the evolution of VTS itself, and to the development of a closely researched and developed linguistic approach to Very High Frequency (VHF) radio oral exchanges, within the confines of procedures laid down by international legislation.
In 1979 I made the following statement:

"The way towards better communication, safety (and profitability) at sea seems to me to lie in the following areas:

(d) Most importantly, the writing of a Controlled Maritime English to eventually completely replace the Standard Vocabulary, and to be accepted into full use by the Maritime community for the many activities with which they are involved."

(Weeks 1979: 311)

Subsequently, in 1980, a project was set up to produce Essential English for International Maritime use, referred to as SEASPEAK for brevity.
The involvement of the author in research leading to the production of this study

- Work for IMO and BBC on Standard Marine Navigational Vocabulary 1976 - 79
- Original research afloat and ashore 1973 - 79
- MA Thesis "Essential Maritime English" 1979
- SEASPEAK 1983
- SEASPEAK FOR VTS 1984
- COST 301 Harmonized VTS Communication Procedures 1986
- LINGUISTICS IN VTS 1987
The work contained in this study is dependent on the following research programme (shown diagrammatically above). Although work presented in my thesis "Essential Maritime English" (Weeks 1979) is not represented in this study as original work, the whole basis of my proposals and suggestions rests on the bedrock of my original research on marine communications, and subsequent refinements of that research. As "Linguistics in VTS" is the pinnacle, so the original research is the base. All developments, shown in the diagram above, have been necessary steps to reach the final goal, and have been an integral part of the overall plan.

As inevitable in a study designed to ease the communication problems of the one million seafarers of the world, this was not, and never could be, a solo task. So far as is known, only one other research programme concerning radio voice communications has been carried out, that leading to the Civil Aviation Authorities' "Radiotelephony Procedures and Phraseology" (CAP 413 1978).

As mentioned, the Seaspeak Project was set up in 1980. The original suggestions made by the author, quoted above, were placed before Professor Strevens, and he, in turn, placed these before his colleagues in Language Management Ltd (see Appendix 2).
The author, already involved in producing materials for IMO (Weeks (1979) (B)), commenced taking the initiatives necessary in order to obtain the necessary moral and financial backing for the proposed work. A proposal was formulated by the author and was presented to IMO where it was received by the Secretary General, Mr. C.P. Srivastava. IMO promised full and active support to the proposed work, a promise that was fulfilled by the direct involvement of Captain C.S. Morrison, Senior Deputy Director. IMO were not, however, able to provide funds, this being the elective task of member Governments.

The author, acting in concert with Professor Strevens, then approached the British Government for funds, and were eventually successful in obtaining a proportion of the necessary monies.

Shortly afterwards, the English Speaking Union organised a seminar on "Safety English", with HRH The Duke of Edinburgh in the chair. Speakers were Arnold Field OBE, on Air English, and the author, on Maritime English. This seminar was attended by a Director of Pergamon Press, and, subsequently, a meeting was arranged between Mr Robert Maxwell, Publisher, and the protagonists of Seaspeak. This meeting took place at University College, London, under the chairmanship of Professor Sir Randolph Quirk. Funding by Pergamon commenced in September 1981, in conjunction with the British Government.
The present study commenced at the same time, the author registering concurrently for the Degree of Doctor of Philosophy. The whole of the Seaspeak Project, Seaspeak for VTS, Harmonised Vessel Traffic Communication Procedures and Linguistics in Vessel Traffic Services therefore fall within the scope of this study, none of these items having been made the subject of submissions for further academic qualifications.

Linguistics in Vessel Traffic Services, however, remains the central and essential theme of this study. The other research efforts mentioned above therefore act in a supportive role, the combined discoveries, refinements and initiatives coming sharply into focus in "Linguistics in VTS", as shown in the diagram below:
At a seminar held at Cambridge in November 1981, to introduce the new research Seaspeak, Professor Strevens said:

"In fact, the main body of SEASPEAK exists in the corporate experience and perceptions of the principal researchers (especially FFW), and the function of the collection and analysis of data is to confirm or refute existing expectations, document confusions or gaps, extend experience from the personal to the quasi-universal."

(Strevens 1981)

This was, in fact, the way that the whole Seaspeak project evolved, the researchers, working under the direction of the principal researchers (Strevens and Weeks), processing a mass of carefully collected data to produce the whole. Some 80% of the ideas and concepts of the author were proved to be correct. Where they were not correct they were altered in the light of evidence gained.

From the outset of the Seaspeak Project it was the intention of the author, and all others, that the results should be for the benefit of all seafarers. Therefore it was essential that the author should somehow introduce the Project into IMO debate. This could not be done by the IMO Secretariat, but had to come from a member State or affiliated organisation. The British Government, the joint
financial supporters of the project, could not do this, since the issue was judged politically sensitive. Instead, the International Association of Lighthouse Authorities (IALA) kindly allowed the author to join their delegation.

The author has taken part in 10 IMO debates on the subject, essential events on the path to international recognition, as the sole representative of Seaspeak and its subsequent developments.

During IMO sessions, IALA showed an increasing interest in Seaspeak and its possibilities. The author, already having taken part in several IMO debates leading towards the production of "Guidelines for Vessel Traffic Services" (IMO 1985), was requested by IALA to produce a derivative of Seaspeak for special use in Vessel Traffic Services. Work commenced at the termination of the Seaspeak project, using the same personnel, except that Professor Strevens was no longer involved except as a consultant.

A change of emphasis in research took place at the beginning of Seaspeak for VTS, since most of the essential analysis of the broad spectrum of maritime conversations had by then been carried out. Instead, the precise needs of VTS had to be carefully examined. The differences between general maritime language, as defined in Seaspeak, and VTS language, had to be identified and isolated. Only in this way was it possible to move from the general to the specific.
With this change of emphasis came a change in proportional workloads, the section of the team based at Plymouth, in the author's charge, carrying by far the largest proportion of the work. Semantics, particularly with regard to legal implications, became an increasingly important aspect of the work, and was solely in the author's charge.

The continuing presence of the author at IMO and European Community meetings produced much interest in the possibility of producing a common language for use by ships and operators within the confines of a VTS system. The author agreed to head a Task Group (TG 7/10, see Appendix 9 and Chapter 5.2), this group being allocated the task of harmonizing the VTS communication procedures of the EEC member countries.

The author had the task of conceptualising, implementing and executing the research programme, and of producing workable and acceptable, yet simple, communications procedures that would be suitable for use throughout the EEC and beyond.

As mentioned at Chapter 5.2, the author had the benefit of the technical expertise provided by the other members of the Task Group. But the authorship of the report of the Task Group was entirely the author's, the result being "Harmonised VTS Communication Procedures" (Weeks 1986).
The work embodied in all three of the major projects described has made a valuable contribution to this study encapsulating, as it does, the principles established by the author in this and previous works.

1.4 Design Criteria

The design criteria adopted for this study were simple only in their desired result. This result has very much in common with the language used in Air Traffic Control, in that it strives towards:

"The creation of a regularized, simplified subset of English for use principally in intership and ship-to-shore communications using VHF radio"

(Strevens 1985: 1)

However, the operational limitations in Vessel Traffic Services are very different from those in Air Traffic Control. The legislative limitations, vocabulary and traditions are all also different.

What is not different is that the language produced must fall within internationally laid down procedures and must be completely unambiguous, easily understood and occupy minimum time on-air. Not only must these criteria hold good within the native English-speaking seafaring community
and their shore-station colleagues, but must hold good between ships' personnel and VTS personnel when both are non-native speakers of different nationalities.

Several of the necessary criteria had been used throughout the whole series of Seaspeak research projects, and were the same, translated to the seafaring context, as are obvious desiderata in Air Traffic Control. For example:

(a) "Words and phrases should be selected in such a way as to ensure optimum transmissability over radio telephone channels and should be incapable of misinterpretation.

(b) Words and phrases should be avoided which will be liable to differences of pronunciation likely to cause misunderstanding.

(c) New phraseologies developed during the study should be clear, unambiguous and where practicable, concise. However, clarity should not be sacrificed in the interest of brevity.

(d) Positive and negative instructions or advice should be clearly differentiated.

(e) Where practicable, words containing sounds or syllabic constructions traditionally difficult in pronunciation by non-English speaking personnel should be avoided."

(Turner and Nubold 1981:2)

Thus the design criteria for SEASPEAK, from which all work in this study originally stems, were defined by Strevens so that they must:

- be in the internationally agreed maritime language, English;
- meet the practical requirements of the bridge officer and shore authorities;
- reduce confusion and ambiguity in speech communications;
- follow existing ITU (ITU 1985) and other regulations and incorporate existing maritime usage;
make it possible to express in a simple and precise manner any and all of the communication needs of professional seafarers;
- be simple to learn, both for native speakers and for non-native speakers."

(Strevens 1984: 3)

In meeting these criteria, Seaspeak adopted techniques which, it is submitted, are inevitably necessary in every study which proposes to make major improvements in the language used in a safety-orientated and pragmatic environment.

The precise method used in Seaspeak was to integrate four elements into a single system. As defined by Strevens the elements are:

1. Procedures and conventions for using VHF radio, including the manner of initiating a call, agreeing a working VHF channel, maintaining contact, and terminating a call, and also the special conventions for speaking letters of the alphabet, numbers, time, position etc.

2. Certain standard usages including fixed-format messages (eg. for distress messages, special position reports etc.) and standard phrases such as "How do you read?", "Say again", "Stay on", "over", "out", etc, which are precise and re-defined replacements of the many uncontrolled alternatives of everyday speech.

3. Rules for organizing the transmissions and constructing the messages so as to maximise understanding and minimize ambiguity, including indicating in advance the intent of each message (question, warning, information, etc.) controlling message patterns and information content and using simple routines for checking the accuracy of message reception.


(Strevens 1984: 3)
The design criteria, and the way these criteria were met, were not different for the VTS situation which this study describes, but were additional thereto. Therefore, a fifth element can be added to the Seaspeak criteria:

"Must be suitable for the specific communications which occur between a ship and a VTS operator, in all predictable circumstances".

Specifically, this extra criterion must allow the VTS orientated language to fulfil the following tasks and criteria:

- To draw up a list of ways to express in English, precisely and without ambiguity, the needs of VTS as they may be predicted at present. The same methods of selection as used for basic Seaspeak should be followed.

- To suggest, in agreement with international regulations or with the present rules now in use internationally clear and precise procedures well adapted to VTS. These procedures should be totally compatible with Seaspeak procedures in order to avoid any discontinuity in the communications exchanged between vessels on their passage from the open sea to areas covered by VTS;

- To constitute, for those whose English is not their mother language, a motive to learning English with more chance of success than would be the case with a vague intention or wide ambition;

- To arrange for an agreement on a standard and simple use of English, suitable for both those whose English is their mother tongue and to all others, if and when the international maritime community decides to use English in VTS communications.

(Pruniers 1983)
In meeting the complete set of design criteria, the final purpose was always kept firmly in mind. This purpose was not the theoretical analysis of the problem, or indeed the purely academic consideration of the language difficulties that can and do occur.

Rather, it was the full consideration of the complete picture, the application of linguistic and pragmatic techniques, and the proposal of a solution that can improve the complete communication operation.

Therefore the overall design pattern can be summarised as follows:-

Concept

Study of existing materials and constraints

Academic research

Academic proposal

Translation of academic proposal into usable practical form

Conceiving and setting up of trials program

Execution of trials program

Suggested solution
1.5 Relation to existing conceptual standards in computer-orientated language

The primary purpose of this study is to propose solutions to communication problems in inshore waters, particularly those associated with VTS. At present, and for the foreseeable future, these communications will be conducted by voice, and using the equipment associated with VHF Radio. That is, the system is and will be dependent on mutual understanding being established and maintained between two human operators, using oral and aural means.

However, techniques already exist which replace the need to listen by the need to see. That is, the final message is presented as a VDU image, or in hard copy. Such systems have advantages and disadvantages, which are discussed in Chapter 2.

Most of these systems, whether they are simple or sophisticated, rely to some degree on computer technology, and therefore, if the proposed solutions are to be adaptable to computer techniques, automatic translation and VDU presentation, they must at least be placed somewhere in the hierarchy of computer language. This is a definite requirement if computer networks are to be used, as is inevitable in the international context of VTS.
"The most widely used grading system for computer network language is that prepared for the OSI."

(Gee 1980)

Gee's work proposes a basic structure, which it is proposed, is common to all computer-orientated language or data-handling systems. The basic structure is referred to as a "Basic Architectural Model".

"The ultimate purpose of any network architecture is to describe the structure of a system which can transport data from one user to another, and let these users understand each other and perform meaningful co-operation. A user in this context could be a computer, a human user, a terminal, a program, or any other process which needs to send or receive data using a transmission system. There is little point in transporting data if it is incomprehensible to the recipient, so the sender and receiver must have an agreement on the form, contents and interpretation of the data being sent. (These take the form of known and agreed rules - a protocol, illustrated below:)

FIG 1 (Gee 1980: 17/18)

In the case of the VTS VHF communications, the "Rules" mentioned by Gee and illustrated in Figure 1 must not only include those necessary for the 'Architectural Model', but
must also include those rules inherent in VHF communications. Indeed, these latter 'Rules' must be given primacy if successful communication is to be achieved.

The full International Standards Organisation (ISO-OSI) model, as proposed by Gee, consists of seven layers of functions within the communications task. These "layers" of functions are as follows:

- Application
- Presentation             Processing orientated
- Session

Transport

Network                     Equipment

Data link                orientated

Physical

Only the top three of these functions are processing orientated, and it is therefore these three functions which most concern the production of a language system for VTS. The remainder of the functions are related to the physical means needed to support the communication process. In other words, they are mainly concerned with equipment.

The main features of the equipment orientated functions are:
Control of data transport,
Routing and switching,
Error checking and correction,
Control of physical media,

Within the context of this study, as related to VTS communications, these functions are fully covered by the requirements of the ITU (ITU 1985) and the International Consultative Committee on Radiocommunication (CCIR), and are not, therefore referred to again.

However, the top three layers are those which include all of the information transfer processes under consideration, and therefore must be examined in more detail:

The Application Layer

"The highest level defined in the Reference Model is the Application Layer. It is the source of all the data which is to be transported, and its ultimate destination. All the other layers exist only to support it. The application layer exists to perform the information exchange functions between applications functions."

(Gee, 1980: 26)

In more simple, and humanistic terms, it may be considered that, in VTS, the content of any message to be transmitted falls in this layer, in that it originates with the human operator ashore or afloat.
The Presentation Layer

"Functions in the Presentation Layer convert data which is given to them by the application layer into a form suitable for common understanding. Similarly data it receives for an application layer is converted into a form appropriate to that application layer."

(Gee 1980: 30)

The proposals made in this study will fulfil the above requirement by providing guidance for the required common understanding. (See Chapter 3)

This process is described by Gee in his diagram "Use of the presentation layer to reduce data conversion" (Gee 1980: 31)
It is obviously easy to apply the principles illustrated in Figure 2 to the VTS communication task. A, B, C, and D can all be taken to be non-native speakers of English, wishing to transmit a common set of technical information to two recipients X and Y. Although in the case of most VTS stations there is only one recipient, we can re-draw Figure 2 to represent the case of 4 ships approaching the Dover Strait. X and Y are the VTS stations at Dover (Coastguard) and Gris Nez, and the 'common format' is the whole of the suggested solution in this study (see Figure 3).

![Diagram](image-url)
The Session Layer

"The purpose of the Session Layer, the next below the Presentation Layer in the Reference Model, is to support data exchange between co-operating entities in the Presentation Layer, which in turn correspond to applications. It does this by establishing communication paths which are called sessions."

(Gee 1980: 32)

In the VTS communication task, the session layer in effect controls the dialogue between two stations executing the VTS task that is, usually, a shore station and a ship. It does this by establishing logical communication paths, mainly by providing general communication procedures as laid down by the ITU (ITU 1985).

Such procedures concern methods of identification of stations, calling, switching over, broadcasts, distress and safety communications, priority of calls, and similar organizational matters.

They do not usually have a significant effect on the content of the information to be exchanged, and are generally used for the purpose of establishing and maintaining radio links, and to enforce discipline whilst those links are being used.

Because the rules mentioned are clearly defined by International Law, they are not affected by any suggestion made in this study. On the contrary, the dictats contained in the ITU Rules are taken fully into account throughout this study, and are rigidly adhered to.
CHAPTER 2 Extra-Linguistic Influences

2.1 Procedural and operational constraints

2.1.1 Procedural

The designer of every form of English course for a special purpose (ESP) is forced to operate under some sort of constraint. Whether that constraint is financial, operational or procedural, it still inhibits, in some way, the manner in which his work progresses.

However, the public perception of danger to the person or the environment is most usually focused on those aspects of everyday life which are most likely to affect the largest numbers of persons. Until the advent of nuclear accidents, that, in most cases, meant accidents that occur in the air or at sea.

By coincidence, it is in these two modes of transport that communications play an all-important role.

Because development in air transport has been so rapid, so too has the growth of regulations governing communications for air traffic control. Even then, the growth of systems and regulations has far outstripped the growth of the special language required.
"Digital radar, transponders and the provision of better transmitting and receiving equipment are a few of the changes which have made significant technical contributions to safer and more efficient air traffic control procedures. To the all important core of the system, however, to the language used in aeronautical telecommunications, very little systematic attention has been devoted".

(Turner and Nubold 1981: 11)

As in air transport, so in sea transport. Technical advances have been rapid and far-reaching, but corresponding advances in language research have not kept pace, due to the official perception that language is secondary to equipment. Notable linguistic milestones have, however, been the Standard Marine Navigational Vocabulary (1985), The Seaspeak Project, Seaspeak for VTS (1984) and Harmonised VTS Communication Procedures (1986).

All of these volumes have been produced under a series of operational and procedural constraints. Weeks 1979 referred to some of these as:

(i) VHF Range and coverage
(ii) Users
(iii) Privacy
(iv) Distribution of utterances
(v) Discipline

(Weeks 1979: 5-17)
Since that time the use of VHF has become even more commonplace, so that it is fitted not only in every ship, but also in most yachts. This in turn has meant that the available frequencies have become very much more crowded, and the relevant authorities have become insistent that users of VHF should be certificated as competent to handle the equipment. Not, most significantly, competent to handle the language, "the important core", but merely the equipment and, sometimes, the language procedures necessary to establish and maintain contact.

The most important of the regulatory publications is undoubtedly the ITU Manual (ITU 1985) and any communications language system must abide by every facet of the Rules laid out therein. If it does not, then it will not be accepted as legal and, in extreme cases, the user may be prosecuted.

So far as VTS communications are concerned, any communications system should not contradict the requirements of the IMO "Guidelines for Vessel Traffic Services" (IMO A578/14). These are guidelines only, but give general standards which have been adopted by most maritime countries. Therefore it would not be prudent to attempt to produce a communication system which is contrary to the requirements of these guidelines.
The Standard Marine Navigational Vocabulary (SMNV 1985) does not produce such severe limitations as either the IMO's (1985) A578 or the ITU (1985) Manual, since it is a phrase book which, paradoxically, contains some of the elements of Seaspeak (Weeks et al 1984).

The official status of the ITU Manual, the IMO Guidelines for VTS and the SMNV is as follows:

ITU Manual: International law adopted by all signatory nations
Guidelines: IMO Assembly Resolution, followed voluntarily by most maritime nations
SMNV: IMO Assembly Resolution (A389[x]) "to be given a wide circulation to all prospective users"

(SMNV 1985: 3)

2.1.2 Operational

It is in the operational sector that constraints multiply. The language used in VTS communications must take cognizance of every facet of the operation with which they are concerned, both from the consideration of the equipment used (mainly VHF radio and Radar, at present) and from the consideration of operational procedures, geography and personnel.
Thus constraints can become a linguistic strait-jacket within which freedom of linguistic movement is extremely limited. Not so limited, however, that the desired results cannot be achieved.

The equipment constraints of VHF have been defined by Weeks as:

"(a) Surfeit of users, producing overcrowded VHF channels
(b) Capture effect, due to relatively short range of equipment
(c) Non-confidentiality of conversations
(d) Similarity with telephone often results in casual telephone-like conversations
(e) A system which relies on voice audio only must inevitably be prone to misinterpretation unless every possible step is taken to reduce this possibility"

(Weeks 1984 (C) : 1)

If the constraints identified above are taken in isolation, they may be perceived as being insurmountable. A communications system which cannot give privacy, but is audible to all within broadcast range, may seem unacceptable. But disadvantages may be advantages when viewed from another standpoint.

"For example, its (VHF) surfeit of users means that a distress broadcast in coastal areas will almost certainly be heard. Also, in a VTS context, a message addressed to a single vessel will be heard by all vessels in its area, operating on the same VTS VHF channel. Thus, if comprehension can be achieved, all vessels in a VTS area can be appraised of a situation which primarily affects one vessel, but secondarily affects several vessels in her locality"

(Weeks 1984 (C) : 1)
Items (d) and (e) above, although constraints, are also challenges. Solutions to them must be proposed. That is done by the ITU Manual, and also amplified in this study.

On a well-run ship, routines are very clearly set up, and are rigidly enforced to maintain safety standards. These routines often originate with Government regulations, and are then amplified and adapted to the conditions pertaining to an individual ship.

One of the most rigid Regulations concerns the keeping a proper look-out:

"Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision".

(COLREGS 1985 R 5)

This Regulation has a major affect on communications systems which are designed to be used at the command position on the bridge, sometimes referred to as "the con". Particularly at night the only illumination is from instrumentation, and it is an absolute pre-requisite (by COLREGS) that a look-out is maintained. According to Weeks
"Whereas communication systems employing hard copy have an advantage at long range, they have a distinct disadvantage at close range because:

(i) The Master's normal work station in confined waters is on the bridge, probably at the con. It may be difficult or dangerous for him to leave the con, or even to delegate, if such a move affects the navigational task.

(ii) It is difficult if not impossible to operate a keyboard and maintain even a look-out role, particularly at night. To maintain effective command in confined or pilotage waters, and to operate a keyboard is considered completely outside any principle of good seamanship.

Therefore, in confined waters, VHF, which is capable of being used at the con and does not impair command, should be considered as the best system for today and the future."

(Weeks 1986: 4)

Thus the bridge VHF may be compared with a car telephone; it is possible to use it in motion, provided caution is exercised. By comparison, it would be difficult to use a keyboard and VDU whilst driving a car.

The equipment constraints exerted by Radar mainly stem from the fact that radar may be the prime generator of information to be transmitted, particularly from a VTS to a ship. Thus message content will to some degree be influenced by the technical characteristics of the radar in use, and the geographical area in which it is operating.
Constraints on language also stem from geographical considerations. For example, the phraseology used in a coastal situation may be quite inadequate in a riverine situation. The effects of such constraints are more fully described in later Chapters.

2.2 International, national and local legislation

The content of a message, as understood by the recipient, is as vital in VTS as it is in air traffic control (ATC). The results of a misunderstanding in ATC are well documented, and are perhaps epitomised by the disaster at Tenerife in 1977 when 583 persons died as the result of the following misunderstanding:

"Pan Am: Third to the left, okay
Pan Am Captain: Third, he said
Pan Am: Three
Tower: ...ird one to your left
Pan Am Captain: I think he said first
Pan Am First Officer: I'll ask him again

The Pan Am crew, in their confusion over which turnoff to take, missed the third taxiway and continued to roll down the runway towards the KLM machine preparing for take off at the other end."

(Breichner 1979)

A similar misunderstanding, fortunately without loss of life, is documented by Guicharrousse:
"A few years ago a big ore carrier came to my Port; for some reason she had to wait in the roads for about half an hour. The VTS Operator, whose English was very limited, used the most simple and easiest he could think of to hold off the ship, and the instruction was: 'Stop, Captain!'. The Captain replied: 'I stop'. But the ship continued to make way. We sent a pilot rapidly, with a fast launch, and when the pilot arrived on the bridge, the speed indicator showed 7 knots. The pilot had great difficulties in preventing the ship from running aground, but he eventually succeeded.

When he asked the Captain why he had not stopped, the answer was: 'But I have stopped; when you arrived on the bridge, you must have noticed that the telegraph was on Stop'. He had stopped the engine, and was waiting for further orders as if he were unconcerned."

(Guicharrousse 1986)

In both ATC and VTS, there will be an eventual apportionment of blame by whatever tribunal claiming jurisdiction over the accident concerned. In the case of ATC, this now seems relatively straightforward, but in VTS the legal situation is far from clear.

What is clear is that:

"It seems self-evident that everybody is responsible for his conduct and, therefore, if an accident resulted from e.g. wrong conduct of VTS authorities, that liability would attach to the responsible authority proportionate to the blameworthy conduct."

(TF3.81 1986)

So far as communications are concerned, there are very serious implications: 'conduct' can obviously be construed as including utterances when, in particular, these utterances subsequently give rise to accidents involving material damage or loss of life.
Thus, in the EEC study "COST 301" it was stated:

"The study addressed the question of civil liability for loss or damage resulting from a shipping accident involving a VTS. Such liabilities could result from:

(i) Incorrect information or advice given to a ship by a VTS

(ii) The failure of a VTS to provide the information or advice expected of it."

(COST 301 1987: 3/24)

If the situation within the coastal waters of sovereign states is complex, then the situation in waters outside coastal waters is almost impossibly difficult. Ships have the right to use international waters as they will (in addition to the right of innocent passage in coastal waters).

This is reinforced by COST 301 as follows:

"When considering the trends relating to VTS in international waters, it should be recognized that the majority in IMO believe that such VTS are not necessary and that they should, in any case, be operated on a voluntary basis. A reversal of such a feeling could come only from a major disaster or from a lengthy practical demonstration of the benefits of such a system."

(COST 301 1987: 3/26)

That is why it is essential for each communication to be given an absolute status, which is clear in the minds of both the originator and the receiver. In this way it is possible to alert the originator to the gravity, or otherwise, of the utterance that he is about to make, and,
at the same time, alert the receiver to the level of authority, if any, which is contained in the message.

This concept is covered in detail in Chapter 4.

Local legislation often materially affects VTS communications. This is generally because of the variance of local geographical characteristics between two ports in the same country. This variance necessitates, in the opinion of local port authorities, a variance in communication patterns.

Whilst such a variance is perfectly justifiable from a local, parochial, standpoint, it is ultimately confusing for ship's personnel, who may find major differences between two ports 50 miles apart. As described in detail in Chapter 4, these variances have been taken into account in the study.

2.3 International, National and local procedures

2.3.1 International

The maritime authority governing international VTS procedures is IMO.
Acting with the advice of governments and international bodies, they have produced several notable documents which have been wholly or partly concerned with the procedures necessary in a VTS communication system.

These are:

Guidelines for Vessel Traffic Services (1985)
Harmonization of Reporting Requirements (MSC 1986)
The Standard Marine Navigational Vocabulary (SMNV 1985)

Each of these documents has, to some extent, concerned itself with the procedures necessary in order to set up and maintain VHF radio contact, and, to a limited extent, with the language content of the operation. Only the "Guidelines for Vessel Traffic Services", however, have attempted to give outline direction on the actual information content of messages in the VTS context.

Therefore, prior to this study and the EEC project COST 301 (1986) with which it was associated, very little international work had been done to define the VTS task. It has been a cornerstone of the research program to define the likely common content of messages and the practical task from which that content arises, before suggesting how messages may best be formed.

The techniques employed are described in Chapters 3 and 5.
2.3.2 National and Local

VTS have been installed and manned exclusively at the instigation of national or local authorities, and it should therefore be expected that procedures would be clearly defined by those same authorities. It should also be expected that the procedures adopted would differ from nation to nation, and from locality to locality.

Reacting as they did to local demands and conditions, VTS authorities produced differing methods of work, different procedures and different "standard" messages within those procedures. Each, in the opinion of the local authority, fulfilled the local need, and was therefore satisfactory.

Shipping, however, is essentially an international business, and serious confusion arose on the bridges of ships. All other items concerning navigators have long since been internationally standardized, and it was therefore doubly surprising that VTS communications should not be.

As mentioned, the committees of the International Association of Lighthouse Authorities (IALA), the International Association of Ports and Harbours (IAPH), the International Maritime Pilots Association (IMPA) and the International Chamber of Shipping (ICS) put forward a series of suggestions to IMO which became the "Guidelines
for Vessel Traffic Services” (IMO 1985). These Guidelines have, amongst their functions, the ability to act as a reference for Governments or local authorities seeking to set up new VTS systems, and also as a set of standards for those authorities already operating VTS.

However, Governments and local authorities have concentrated on the pragmatic aspects of VTS, and the professional integrity of their staffs. Therefore the written, formal procedures for the VTS centres concerned have not always been as impressive as the equipment used, or the service offered. This had two effects:

(i) It was difficult for an outsider to know exactly what procedures any given VTS Centre was following, and, by inference, what message patterns were connected to those procedures;

(ii) it was difficult to ascertain what elements of procedure were common to most systems, and which could therefore be taken as a procedurally successful base which could be assumed to be a reasonable starting point for message formation. As with Seaspeak itself, an existing base was essential to the whole study. No mariner would accept anything else.
"Second, the decision to build on what we've got. RT communication has used formulae like "over" and "out" for generations; mariners have used "Mayday" for generations. When the international authorities agreed on the form of English to be used a decade ago in air navigation they also built on these already current forms".

(Quirk 1983)

The VTS authorities which have produced formal documentation on the procedures to be followed (and therefore increased the predictability of the message content ensuing) have done so in varying detail.

The most complete work is that produced by the Canadian Coastguard (Canadian Coastguard 1984) and related documents. These documents, unique as far as I know, allow the following clear sequence of events to be followed:

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Government Legislation → National Procedures → Regional Procedures

(Canada Shipping Act) (Canadian Coast Guard 1984) (Canada : VTS)

(Vancouver VTS 1984) ← Local Procedures ← (Amphitrite Point VTS 1984)
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Most VTS Centres produce operational procedure manuals for internal use only, these often being produced as a volume of internal memoranda. Thus, again, procedures are difficult to compare.
So far as the user is concerned, most VTS Centres promulgate their procedures in some way, usually through official publications such as the Admiralty List of Radio Signals (NP 286) or through individual publications such as "Vessel Traffic Services Puget Sound" (Puget Sound 1981). These publications are aimed almost exclusively at the mariner, not at the VTS operator and therefore, perforce, lack the detail that is necessary to analyse the information content expected in a message, or even the procedures, operational and communicative, behind that information content.

Thus, before work could begin on the core language necessary in VTS, investigations had to be carried out to determine if there was common ground, between various VTS, regarding information content.
CHAPTER 3  Factors Affecting a VTS

3.1  Study Context

Even though different VTS may appear, at first glance, to offer the same services and perform the same task, this is not the case.

Various factors combine to produce three main types, even though the boundaries between these types are often blurred. So that this study could produce a simple set of communication messages and procedures, the types chosen were:

(i) A landfall VTS
(ii) A through-routeing VTS (Through Traffic)
(iii) A port, including port approaches, VTS

These types may be defined as follows:

(i) A landfall VTS: The first VTS system encountered by a vessel after an ocean passage, or on re-establishing contact with a VTS system after a period out of contact with such a system.

(ii) A through-routeing VTS: A VTS system with no port in its working area.
(iii) A port, including port approaches VTS: A VTS system with a port within its working area.

The typology chosen above was found to be especially convenient during the trials period. Because the functions of the different types overlap, the communications used also tend to overlap, although the personnel operating the VTS see their functions in very different ways.

During my research a generic model has been used to consider the overall communications problem, and has divided this model into three major areas of consideration, or scenarios.

3.1.1 Geographic Area.

In terms of geographic area, the VTS may be defined as follows:

1. It is an area defined by geographic references, and most areas within it will be capable of being navigated by sea-going ships.

2. The area of interest may be expected to extend approximately 40 nautical miles from the VTS Centres' radar or VHF sensors, and will terminate at the approaches to harbour berths.
.3 The VTS area may contain a strait, which may contain an IMO, or non-IMO, approved Traffic Separation Scheme (TSS), in waters outside national waters extending along the coast. This TSS, and all other waters within the strait, will be subject to COLREGS (1983).

.4 Confined waters may be expected to exist within the VTS area at the approaches to a port.

.5 Fairways may be expected to be present in national waters or waters outside national waters. These fairways may be restricted both in width and depth. Within them, reference lines and waypoints may be established.

.6 It may be expected that obstacles to navigation may exist within the VTS area.

.7 Conditions of restricted visibility may sometimes occur within the area.

.8 Under some conditions of visibility and sea-state, normal pilotage may be suspended.

.9 The VTS area is likely to be particularly sensitive to pollution hazards.
3.1.2 Traffic Flow

When considered from the aspect of traffic flow, the VTS shows the following characteristics:

1. The density of maritime traffic in the area is likely to be high.

2. Complex fairway intersections, both in national waters and in waters outside national waters, may give rise to complicated traffic patterns.

3. The maritime traffic in the area must be presumed to include "every description of water craft, including non-displacement craft and seaplanes, used or capable of being used as a means of transportation on water" (COLREGS 1983 Rule 3). This means that it will include tankers, vessels carrying dangerous goods, and pleasure craft.

4. Fishing activities may exist within the area.

5. If traffic separation schemes (3.1.1.3) exist in the VTS area, they may be accompanied by Inshore Traffic Zones (ITZ). These Zones will be subject to COLREGS (1983) Rule 10 and be subject to national rules if situated within national waters.
3.1.3 Organizational Aspects

When the organization of the VTS is considered, the following considerations become apparent:

1. The VTS Centre will implement special national or local rules with respect to navigation, reporting procedures and safety/anti-pollution measures inside national waters within their jurisdiction.

2. The VTS Centre will provide services to vessels in order to improve the safety and efficiency of traffic and the protection of the environment.

3. The VTS may be responsible for handling emergencies anywhere within its area, and for the co-ordination of Search and Rescue (SAR) operations as a Rescue Co-ordination Centre (RCC).

4. The VTS Centre may be responsible for the correct functioning of aids to navigation in its area.

5. The VTS may have links with port and emergency services, and also with port commercial operations, but does not necessarily control such services.
3.2 Functions of a VTS

The only officially recognized definition of the functions of a VTS is that contained in the IMO (1985) Guidelines for VTS (A578/14). These Guidelines are produced in full in Appendix 1. In brief, these functions fall under the following categories:

(COST 301 1986)

The scenarios offered above explain the general context of VTS operations, and explain the prime sources of the need to communicate to and from a VTS. In the clearest case, the VTS may have the legal right to deny entry, or passage, to a ship wishing to use the waters over which it has jurisdiction. This denial of entry must be communicated to the ship in clearly understood language.
Data collection
Data evaluation
Information service
Navigational assistance service
Traffic organization service
Support of allied activities

(IMO 1985 A578/14 : 16)

However, for the purpose of this study, these functions were further refined into:

Primary functions
Enforcement functions
Remedial functions
Support of allied activities

Because the functions of a VTS have a direct bearing on the message content to be communicated, the description of these functions developed in the course of my research, and adopted as a working standard by COST 301 (1986) is given below. Communication procedures and message content, in a VTS, must fulfil the requirements of these functions and provide a rapid and efficient method of ensuring that the required tasks are executed.
3.2.1 "Primary Functions"
These include:

3.2.1.1 Traffic Organization
The VTS Centre establishes the rules and regulations for the management of the traffic flow (Amphitrite Point VTS 1984). The VTS Centre provides information to authorities on effectiveness of traffic management measures. It also makes decisions on initiating movements in the respective area of interest (approaches to ports, fairway crossing etc).

3.2.1.2 Decisions
The VTS Centre makes decisions, normally in conjunction with pilots, concerning limitations to draught and size of ships for fairways and/or port approaches.

3.2.1.3 Traffic Surveillance
The VTS Centre collects data of ships in the area and attempts to detect and identify ships acting in contradiction to the (relevant) rules.

3.2.1.4 Information Service
The VTS Centre provides information on navigational, hydrographic and meteorological aspects, navigation aids and other traffic. It also provides information to ships on any potential collision hazards. (See Figure 4)

3.2.1.5 Navigational Assistance
The VTS Centre provides information to ships to assist them in remaining within the navigable space, and to manoeuvre to avoid collision."

(COST 301 1986: 16)

The ability of a VTS to carry out the above primary functions is dependent upon it being equipped to a suitable standard. For example, it would not be possible to fulfil item 3.2.1.4 "information on any potential collision hazards" unless the VTS were equipped with radar. The communication function would obviously be dependent on the primary information source, radar.
A Schematic VTS Communication System

Legend
- Boundary of VTS operational control.
- Direct communications link not involving VTS centre
- Direct communications [radio/microphone/landline etc.]
- General advice and written communications

IMO
ITU
IALA

Seaspeak for V.T.S., 1983.
Nevertheless, a VTS without a radar does not cease to be a VTS. Many small ports are equipped with VHF only, and fulfill a VTS role completely satisfactorily. They are, however, unable to carry out several primary functions.

Other functions of a VTS system also have a high communication content. They are:

3.2.2 Enforcement Functions

"The VTS Centre monitors (shipping movements) and provides information to enforcement authorities on all detected deviations from national (and local) rules. Instructions (advice and information) to ships with regard to the enforcement of rules can be relayed from the enforcement authority, (via the VTS) to the ship."

(COST 301 1986 : 17)

In this function, the communication process works in two stages:

1. Exchange of information and decisions between VTS and the enforcement authority.

   This will be in local language, and therefore does not concern this research.

2. Transmission of enforcement message to the ship.

   The language and status of this message must be absolutely clear, both to the VTS and the ship, and falls within the scope of my research. See Chapter 4 and Chapter 5 below.
3.2.3 Remedial Functions

"The VTS Centre provides information concerning ships to Search and Rescue (SAR) authorities as a Rescue Co-ordination Centre (RCC) emergency service. It also provides pollution containment resources as a precautionary measure and in the event of an emergency. Furthermore, the VTS Centre decides on allocation of space for ships in the event of an emergency.

The VTS may act in co-ordinating SAR operations, as a RCC."

(COST 301 1986 : 17)

This function of a VTS is well defined in the ITU rules (1985) and is therefore not a major new concern of this research.

3.2.4 Support of Allied Activities

This function requires information exchange to, and from, activities allied to those of the VTS authority eg: pilotage services, port services, pollution control, marine safety and SAR."

(COST 301 1986 : 17)

Most of the communication activity associated with this function will take place between the VTS authority and the allied activity. Communication is most likely to be in the local language, although items such as SAR may well be international and utilise English.

The communication from VTS to ship, however, necessary to pass the relevant information, is most likely to be in English. Further, the terminology used must be clearly understood by all participants. Therefore this function forms an integral part of the research.
It is necessary to set a limit on the number of allied services whose activities can be deemed to be influential on the VTS communication task. These are shown at page 51 in Figure 4.

3.3 Information Content

During the course of the investigative visits made, chiefly during the early part of my research, to a variety of VTS Centres and allied establishments, research was carried out to determine what items were most likely to constitute the information element of messages.

Some details are given in Chapter 5 below.

The principal items of information are as follows:

3.3.1 A unique identifier for the vessel: name, radio call sign, including date, time and zone.

3.3.2 Vessel location, position, course and speed. Position in geographical reference, latitude and longitude in degrees and minutes, or given by a true bearing and distance from a clearly defined landmark, or by a true bearing and distance from a fixed floating mark.

3.3.3 Intended movements (navigation plan or sailing plan) within, joining and leaving the VTS area. Reference made to navigation marks, waypoints, anchoring positions, berth locations etc.
3.3.4 Advance notice and time of expected arrival at the boundary of the VTS area, and/or port approach fairway. Berth assignments.

3.3.5 State or standard of vessel (status of ship, equipment, personnel, cargo, defect reports).

3.3.6 Further information on vessel, especially concerning cargo (noxious or hazardous cargo in accordance with IMO classification in IMDG 1981).

3.3.7 Navigational assistance information with regard to the ships position related to waypoints, navigation marks and/or reference lines or related to other ships in the area whose positions have been clearly identified.

3.3.8 Hydrographic data (sea level, high water, tidal streams and meteorological data,) (visibility, wind, ice, weather forecasts and wave heights).

3.3.9 State of aids to navigation (lights, buoys, beacons and navigation systems).

3.3.10 Information on pilotage and tug services and/or requirements (availability, suspension of service, meeting points and cruising stations).
3.3.11 Information held in data banks (such as Lloyds Maritime Information Service).

Although this list is not exhaustive, it does cover most of the items of information contained in messages to and from VTS Centres in their everyday communications with ships.

If specialist or commercial topics are included, the information items, and their associated vocabulary, increase to the full breadth and depth of SEASPEAK (Weeks et al. 1984).

3.4 Information quality

The communications procedures and message content must fulfil the requirements for the exchange of information according to the international standards in maritime use, as laid down by the appropriate international convention.

For example, it is necessary to rigidly adhere to the conventions established with regard to:

Transmission of letters, numbers, units of measurement, time (zones) and dates

in order to avoid confusion or misinterpretation.
3.5 Information Flow

A VTS Centre depends upon two main sources for its information:

3.5.1 Dynamic: that is, information with validity on the same time-scale as the traffic. For example, position information from individual vessels, and

3.5.2 Static: that is, information from governmental regulations, official charts, tide tables etc.

There are two methods by which the assembled information is disseminated:

3.5.3 Broadcast: in which any vessels within radio equipment range are addressed collectively, and

3.5.4 Selective: in which individual ships are addressed with individual messages. However, no VHF call can be truly selective, for the reasons explained in Chapter 1. More precisely controlled selectivity can be achieved by data link, telex etc., but such methods are dependent on equipment provision.
4.1. Seaspeak

The transfer of information from a VTS Centre to a ship, and vice-versa, depends upon the formation of messages. Whether these messages are in code, structured language or 'free' language is a matter of pragmatic choice, provided that the requirements of international rules and regulations are followed.

But the efficient transfer of information cannot be haphazard - it must be carefully thought out to produce the maximum effect, with no ambiguity, in the minimum time.

The transfer of information described in this study is based on the work carried out by the Seaspeak Team between 1980 and 1984, see Appendix 2, in the production of the Seaspeak Reference Manual (Weeks et al. 1984), and subsequently Seaspeak for VTS (Weeks et al. 1984 [B]) and the Seaspeak Training Manual (Weeks et al. 1987). The principal features of Seaspeak are described below.

4.1.1 Purpose

(a) To ensure rigid adherence to internationally agreed procedures;
(b) to ensure the use of the most simple and most easily comprehended message forms and message content (Weeks 1984 [C]) or, according to Johnson:

"The purpose of the Seaspeak project is to plan an efficient system for conducting maritime VHF calls; a system which controls both the organisation of the conversation and the construction of the messages."

(Johnson 1984)

4.1.2 Application

"The Seaspeak recommendations relate chiefly to communication by VHF radio; they embody recommended procedures for initiating, maintaining and terminating conversations, as well as recommended language (ie: relevant portions of English grammar and vocabulary) and recommendations for the structure of messages; the whole within the range of the great majority of maritime subjects for communication"

(Weeks et al. 1984 : v)

4.1.3 Origin and Research Organisation

'Seaspeak' originated with an idea postulated by the author in his thesis Essential Maritime English.

"Most importantly, the writing of a Controlled Maritime English to eventually completely replace the Standard Vocabulary, and to be accepted into full use by the Maritime community for the many activities with which they are involved."

(Weeks 1979 : 311)

The core purpose became modified to that stated at 4.1.1, and the work progressed under the academic leadership of Professor Peter Strevens and the author.
Please refer to Appendix 2 for more details of research personnel, methods and supervision.

4.1.4 Composition

Seaspeak is a generative language, and comprises three major elements. These are:

1. Comprehensively yet simply stated procedural rules, all of them already internationally agreed, which however had to be gleaned from several different international sources. The sometimes difficult phraseology of international conventions is explained in a way that is easily comprehended by a non-native English speaker, and examples are given of procedural rules for use in everyday situations.

2. A section devoted to the principles of message construction, to give maximum clarity of meaning and ease of comprehension.

3. A comprehensive word list, suitable for all grades and all trades.

The importance of these elements, and their content, cannot be over-emphasised, both for Seaspeak and the purpose of this study. Seaspeak principles hold good throughout each facet of marine communications.
The first element, concerned with procedure, is important because it clearly shows how time can be saved, and confusion avoided, by the rigid use of standard procedures. These procedures cover every predictable communication situation from first call to the termination of the exchange. To a native speaker, these procedures may seem pedantic, but the elimination of procedural misunderstandings, for example, caused by selection of the wrong VHF frequency, or channel, almost always reduces overall message time.

The second element, concerned with the principles of message construction, is important because it employs the most sophisticated linguistic techniques to improve message expectation, clarity and comprehension. Among these techniques is the use of "Message Markers" used to increase the expectation of the listener, so that he is aware of the type of message that follows. Each message marker has a corresponding reply marker:

<table>
<thead>
<tr>
<th>Message Marker</th>
<th>Reply marker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question</td>
<td>Answer</td>
</tr>
<tr>
<td>Instruction</td>
<td>Instruction-received</td>
</tr>
<tr>
<td>Advice</td>
<td>Advice-received</td>
</tr>
<tr>
<td>Request</td>
<td>Request-received</td>
</tr>
<tr>
<td>Information</td>
<td>Information-received</td>
</tr>
</tbody>
</table>
Warning  Warning-received
Intention  Intention-received

These message markers and their replies were the subject of much deliberation, and are more fully described at 4.2.3.

The third element, the word list, comprises some 5,000 words of maritime vocabulary. Sub-sets of these words apply to different maritime situations in different locations. It was considered over-optimistic to expect all mariners everywhere to learn such a large word list, but, instead, groupings have been made to suit the trade and grade of qualification of the officer concerned. For example, vessels trading in the Mediterranean would not need the 'ice' word list, and junior officers would not need the words associated with 'agency' and 'ships business'.

Seaspeak was primarily designed for the bridge officer, in the discharge of his everyday communications duties. This study develops that theme towards the specialised communications needed towards the end, or at the very beginning of a voyage, when the ship is in communication with the VTS Centre, or, in some geographic locations, with the Pilot station.
4.2 The Seaspeak Proposals in More Detail

4.2.1 Procedures

All VHF Communications can be said to comprise the elements contained in Figure 5:

```
VHF COMMUNICATIONS
  \-----\-----\-----\-----
  | DISCIPLINE | PROCEDURES | LANGUAGE |
```

FIG 5

Thus procedures and language comprise the two integral components of the whole, VHF Communications.

Before any language content can be inserted into the whole, the procedures must be correct, or contact may never be made, or, if made, can be lost.

In the Seaspeak Training Manual Glover, Johnson, Strevens and Weeks (Weeks et al. 1987) suggest that there are normally 4 stages in a VHF exchange. These are:
Stage 1

**MAKE CONTACT**
(normally VHF Ch 16)

Stage 2

**AGREE AND SWITCH TO A SUITABLE WORKING CHANNEL**

Stage 3

**EXCHANGE MESSAGES**

Stage 4

**Terminate**

FIG 6

These stages form a suitable framework for the more detailed operational and linguistic functions that must now be performed, in precise detail, to fulfil all the desiderata of efficient communication.

Schegloff (1968) used the term "sequencing in conversational openings". This term is even more applicable to the opening of conversations using VHF radio.

In Figure 6, the four stages in a simple VHF exchange were illustrated in terms of an overall picture, ignoring the fact that the exchange must have at least two participants. A more detailed and accurate analysis is shown below (see Figures 7 and 8).

This diagram was not intended to fulfil a "slot and filler" function, but rather to give a clear guide to the steps that must be taken in order to pass a message efficiently. The time spent on the message content may appear to be a small proportion of the total time involved, but the study has shown that any attempt to abbreviate the routine not only infringes the requirements of ITU (1985), but may actually result in a lost radio contact.
STAGE 1

Step 1
INITIAL CALL

Step 2
RESPOND TO CALL

STAGE 2

Step 3
INDICATE WORKING VHF CHANNEL

Step 4
AGREE WORKING VHF CHANNEL

SWITCH OVER

STAGE 3

Step 5
SWITCH OVER

Step 6
MESSAGE

Step 7
RESPOND TO MESSAGE

STAGE 4

Step 8
END TRANSMISSION

END PROCEDURE

Step 9
END PROCEDURE

FIG 7
Example

VTS

STAGE 1

Step 1 Initial Call
Gaynor W. Gaynor W This is
Chaudron Port Traffic on VHF
Channel 16
Over

SHIP

Step 2 Respond to call
Chaudron Port Traffic
This is Gaynor W
Over

STAGE 2

Step 3 Indicate VHF Working
Channel
Gaynor W This is Chaudron
Port Traffic Switch to VHF
Channel 20
Over

Step 4 Agree VHF Working
Channel
Chaudron Port Traffic This is
Gaynor W Agree VHF Channel 20
Over

ON WORKING CHANNEL

Step 5 SWITCH OVER

ON WORKING CHANNEL

Step 6 Message
Gaynor W This is Chaudron Port
Traffic
Information: Position: distance
300 metre from intersection of
reference line 167 and reference
line 185
Over

Step 7 Respond to message
Chaudron Port Traffic This is
Gaynor W.
Information Received: My
Position distance 300 metre
from intersection of
reference line 167 and
reference line 185
Over

STAGE 3

Step 8 End Transmission
Gaynor W This is Chaudron
Port Traffic
Nothing more
Out

END PROCEDURE

FIG 8
The procedures to be used in different circumstances vary slightly, for example, those to be used when a broadcast is planned take account of the fact that there is no response expected. Details are contained in Appendix 11.

4.2.2. Standard Phrases

In the Seaspeak Reference Manual (Weeks et al 1984) the purpose of "standard phrases" is explained as follows:

"The purpose of using standard phrases is to avoid the large number of paraphrases or alternative ways of expressing the same meaning which are available in everyday English. Thus the meaning 'I did not hear your last message: please repeat it', might be expressed by 'Say that again, will you?', or 'Do you mind repeating what you have just said?', or 'What did you say?', or in many other ways. In Seaspeak this request for clarification is to be expressed by 'Say again', and not by any paraphrase of the type quoted."

(Weeks et al 1984 : 37)

There are 42 standard phrases, for use in

Making and maintaining contact
Conversation controls
Clarification
Announcements
Polite statements
Channel switching

Their use forms an integral part of the whole of Seaspeak, and they are listed in full in Appendix 12.
These standard phrases could not be chosen arbitrarily. In some cases, they were prescribed by international regulation, and therefore could not be changed. In most cases, however, there were several words in use, none of which was completely satisfactory.

As an example of the difficulties that became apparent, consider the word "ROGER".

In the International Code of Signals valid up until 1959 (HMSO 1959), the single flag signal 'R' meant "Your message received and understood". When signalling by light, the single letter 'R' meant "Your message received", though not necessarily understood. At the same time, the phonetic alphabet, for use in voice communication, gave ROGER as the phonetic for 'R'. At the next issue of the Code (HMSO 1969) the phonetic for 'R' became ROMEO, whilst the signal by light meant 'received'.

Concurrently the practice in aircraft radiotelephony, as detailed in Radiotelephony Procedures and Phraseology (CAP 413 1978) was, and is, to use the word ROMEO as the phonetic for 'R', whilst ROGER was, and is, used to mean "I have received all of your last transmission".

The use of the word 'Roger', however, has other connotations on the international scene, which inhibit its use in a newly-designed system.
Firstly, 'Roger' has become a word which has come to have the meaning "I hear what you say" not "I understand what you say". It is used as a speech-pause, rather like 'eh', and has become virtually meaningless because of that.

Secondly, serious objections were raised by the Soviet authorities on the grounds that Roger had too many connections with World War II. These objections were not, at first, given credence, but were subsequently substantiated. 'Roger' was dropped in favour of the more definitive phrase 'message received'.

The use of Standard Phrases is shown in Figure 8, where those used are underlined:

4.2.3 Message Markers (See Section 4.1.4)

Message Markers are perhaps the most important single linguistic device used in Seaspeak, although they form just one part of the cohesive whole.

The principle originated from an observation by the author. This arose when teaching a group of nautical students in Bremen, when one student prefixed every question by the word 'Frage'. It was absolutely obvious that a question, and nothing else, would follow. Subsequently, Professor Quirk paraphrased the technique as "tell them what you are going say: then tell them".

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The suggestion was put to the Seaspeak team that every significant maritime message could be given a 'prefix' which would allocate it a precise status, or order of precedence, in the communicative process.

Thus the recipient would know exactly what type of utterance he could expect, before the utterance was made.

This technique has very considerable advantages from the linguistic, practical and legal points of view, and is an essential cornerstone of Seaspeak and all developments therefrom.

From the linguistic point of view, the recipient enjoys the advantage of having the received information classified before it is received, instead, as is normal, having to wait until the end of the sentence before classification can be made. Thus perception and understanding can be greatly accelerated by using the additional stimulus of a marker word. At the same time, any doubt that remains in the mind of the recipient concerning the overall status of the message should be removed at the outset.

Even though Seaspeak messages should be constructed in a prescribed way which makes understanding easy, the message marker will re-inforce the impact. Even if, for example, a question is asked colloquially (perhaps merely by a voice inflexion at the end of a sentence) the message marker will remove any doubt in the recipient's mind.
In practice, it is absolutely essential that the Master of a ship understands completely the status of a message received by his ship. The relationship between the various persons seeking to have some influence over the navigation of an individual vessel or the whole of the maritime traffic, has been built up carefully over the years. In former years, in inshore waters, the Master was in sole command, taking navigational advice from the Pilot, when he eventually boarded.

In recent years, shore organisations have attempted to influence the traffic pattern in various ways, by influencing either individual vessels or the whole of the traffic. These influences have been proposed on both the strategic and the tactical level.

However IMO (1985) has said:

"Care should be taken that VTS operations do not encroach upon the Master's responsibility for the safe navigation of his vessel or disturb the traditional relationship between Master and Pilot."

(IMO A578/14 : 4)

Thus it is essential for both the Master and the VTS operator to understand perfectly the status of any message that passes between them.
At the same time:

"A VTS is any service implemented by a competent authority, designed to improve safety and efficiency of traffic, and the protection of the environment."

(IMO A578/14 : 3)

It would be quite impossible for the VTS to carry out any part of its function unless communications could be made with the ship. It is what is implied by those communications which makes precise meanings so important.

Inside national waters, it is generally accepted that strategic decisions are the privilege of the coastal state. Such decisions may be necessary in order to avoid massive pollution, and may range from simple information to an order bearing the full force of the State concerned. Even so, the tactical decisions remain with the Master, and the exact manner in which he carries out the requirements of the State, acting through the VTS, remain his responsibility. Thus it is necessary that:

"Any VTS message directed to a vessel should make it clear whether it contains information, advice or instruction."

(IMO A578/14 : 9)
As mentioned in Chapter 1, the results of this study were made available to the relevant international bodies at the first possible moment. Because of the importance attached to the status of messages, these were adopted by IMO both for use in general communications and in the more specialised VTS sphere of operations.

The semantics involved in message markers are of the utmost importance, and therefore the precise definitions produced by the author and adopted by IMO (1985) are given below:

- **QUESTION**: Indicates that the following message is of an interrogative character
- **ANSWER**: Indicates that the following message is the reply to a previous question
- **REQUEST**: Indicates that the contents of the following message are asking for action from others with respect to the ship
- **INFORMATION**: Indicates that the following message is restricted to observed facts
- **INTENTION**: Indicates that the following message informs others about immediate navigational actions intended to be taken
WARNING Indicates that the following message informs other traffic participants about dangers

ADVICE Indicates that the following message implies the intention of the sender to influence the recipient(s) by a recommendation

INSTRUCTION Indicates that the following message implies the intention of the sender to influence the recipients(s) by a regulation

In a VTS situation those message markers which contain the highest semantic content are:

\[
\text{INSTRUCTION} \uparrow \\
\text{ADVICE} \\
\text{INFORMATION}
\]

with, as a separate entity, WARNING. The arrows shown above show increasing status.

4.2.3.1 **The status of message markers**

During work carried out towards the latter part of this research, work almost exclusively concerned with VTS, the author perceived that the status words 'Information', 'Advice'
and 'Instruction' carried far more semantic importance than had hitherto been realised by the participants in the VTS communication loop.

In certain locations, at certain times, a precise directive from the shore to the ship may seem to be appropriate.

For example:

"In certain places traffic rules exist. Such rules may cover the movement of special ships, limitations in a channel (fairway) or passing or overtaking situations. Where such rules exist, and where the VTS operator has the authority, the VTS operator may need to issue instructions to ensure that traffic complies with these traffic rules as appropriate."

(IMO A578/14 : 12)

In some locations, it was discovered that there were plans to 'issue instructions' which would influence the conduct of the navigation of the ship at a tactical level, that is, by giving precise directions on course and speed and even helm orders, from the VTS centre, perhaps 30 miles from the ship, acting on information gleaned from the operators' radar. This would obviously be in contravention of IMO (1985) A578/14: "Care should be taken that VTS operations do not encroach upon the master's responsibility for the safe navigation of his vessel" (IMO A578/14 : 4).

However, it is in the liability for such an attempt to influence the tactical conduct of the ship that the full consequences become apparent. Even though the legal
implications lie outside the scope of my research, it appears obvious that a VTS Centre cannot fully remove itself from the liability that it has for issuing instructions, perhaps in a message prefixed by the Marker: Instruction.

As COST 301 says:

"Many users of VTS fear that VTS authorities would refuse liability for the damaging consequences of their actions, for example, a message containing incorrect information. Furthermore, some VTS users believe that, unless a VTS authority explicitly accepts liability for its actions, the services which it provides cannot be relied upon. Hence the question of liability needs to be considered."

(COST 301 1987 : 3/25)

Most VTS authorities, therefore, limit their 'instructions' to strategy, by refusing or permitting entry into a particular area or fairway. The tactical decision on how to do this remains with the ship, thereby reducing, perhaps, the liability of the VTS Centre. At the same time, the requirements of IMO A578/14 are satisfied. As put by COST 301:

"Furthermore, it would seem that, in practice, it would not be possible to depart entirely from the principle of good seamanship as the ultimate remedy. The status of the VTS will therefore always be quasi-authoritative."

(COST 301 1987 : 3/24)
The linguistic importance of a single utterance 'Instruction' therefore takes on a significance which can, perhaps, only find a comparison within Air Traffic Control. The VTS operator making the utterance must be fully aware of the enormous responsibility he is assuming by making the utterance. At the same time the ship must be aware of the gravity of the situation which must exist to prompt the VTS operator to make the utterance. The ship, therefore, must realise that any action it takes after receiving such an utterance must be made with the greatest care, weighing every parameter.

Since applied linguistics must be concerned with every pragmatic item in the communicative process, it is relevant to examine the effect of a similar process in Air Traffic control. According to Guicharrousse:

"How will the pilot manage to land in case of bad visibility? In the old days, the landing was made possible by means of the procedure called Ground Control Approach (GCA) and the use of a Precision Approach Radar.

The plane was guided down to the ground by an Air Traffic Controller; but this procedure is still used in some military airbases which have special requirements, has been replaced in all civil aerodromes all over the world by the Instrument Landing System (ILS). The ILS consists of ground based radio equipment and of an instrument located in the cockpit of the plane. The pilot can read on the dial of that instrument all the indications he needs to maintain his plane on the centreline of the runway and on the glide path.
The GCA has been abandoned because it was very expensive, it implied close cooperation between the pilot and the controller both of whom had to follow specialized courses to obtain a special qualification, it increased the risks of error as two persons were involved, it slowed down the traffic as only one plane could be attended to at the same time and, finally, the pilot had to rely completely on the skills of the controller, which means that the airport could have been held responsible in case of accident, and the Airport Authorities were not very happy with that prospect."

(Guicharrousse 1984: 22-28)

Thus, in Air Traffic Control, tactical decisions have been returned to the pilot, as is advocated within the true interpretation of the marker 'Instruction' concerning ships and VTS.

As is explained later, the optimum situation in VTS is one of co-operation, not conflict, between the participating parties. A good appreciation of the semantics of crucial utterances greatly increases the possibility of this co-operation.

4.2.4 Reply Markers (See 4 and 4.2.3)

These are used to signal messages in reply to the relevant Message Markers. This acts as an acknowledgement of the status of the original message marker, and may contain salient items of the original message, to show that they have been received. If it is essential to ascertain whether the message has been understood, not just received, a further step is involved.
4.2.5 Message Checks

Work within the Seaspeak Team, chiefly by Edward Johnson, indicated that a form of message checking is essential to be certain that a message is understood. A typical sequence is:

Speaker A asks a question (Step 1)
Speaker B gives an answer which will include a reference to the question (Step 2)
Speaker A acknowledges the answer by reading back the information provided in Step 2. He will precede this by the word 'Understood' (Step 3)

4.2.6 Message Patterns

Seaspeak is generative, and therefore does not attempt to inhibit what is said, but the way that it is said. Thus, as has been mentioned, all questions must be prefixed by the word Question. They should also fall within three patterns or types:

(a) Wh questions
(b) X or Y questions
(c) Yes or No questions

Types (a) and (b) above are self-evident, but type (c) involved considerable work by the author and others within the Seaspeak Team.
The SMNV uses the words 'yes' and 'no' in the following way:

"Where the answer to a question is in the affirmative, say: 'yes' - followed by the appropriate phrase in full.

Where the answer to a question is in the negative, say: 'no' - followed by the appropriate phrase in full." 

(SMNV 1985 : 8)

CAP 413 uses the words 'Affirmative' and 'Negative' in the following way:

"Affirmative" meaning "Yes or permission granted"

"Negative" meaning "No or permission not granted or that is not correct"

(CAP 413 1978 : 7/8)

Even though the SMNV has IMO approval, research proved that a single-syllable reply was not satisfactory in VHF communication, because it could be easily lost in background noise. The listener would then be much inclined to hear what he wanted to hear, with potentially dramatic results.

Even though the words 'Affirmative' and 'Negative' are used in air communications, research showed that there is more phonetic difference between 'Positive' and 'Negative' and the latter were therefore chosen.
Other devices, limiting the choice of ways to give reasons, correcting mistakes, making message checks and clarifying messages are also employed.

4.2.7 Word List

The construction of a relevant specialist word list for a given application is never easy, even if the raw materials are readily available.

Maritime radio is subject to ITU regulations, which make even the disclosure of the existence of a radio message illegal.

"The Master or the person responsible, as well as all persons who may have knowledge of the text or even of the existence of a radiotelegram, or of any information whatever obtained by means of the radiocommunication service, are placed under the obligation of observing and ensuring the secrecy of correspondence."

(ITU 1985 : Para 3833)

Even though there may be many VHF conversations taking place concurrently in a given area it is therefore not permissible to admit that the conversations are taking place, and certainly not to disclose message content.

In order to obtain suitable raw material the author, assisted by Alan Glover, set about collecting a wide variety of VHF conversations from almost every area of the world, with the permission and help of the responsible authority.
Assurances were given, and kept when requested, that the contents of messages would not be divulged. Only the message contents were used in the analysis process.

Before such analysis commenced, about 1600 VHF conversations were collected and transcribed. These transcripts were then analysed at the Cambridge University computing unit, chiefly by Edward Johnson. The transcripts were supplemented by a set of 200 logged VHF conversations supplied to Weeks and Glover by shipping companies, and by:

(a) The ITU Manual (ITU 1985)
(b) The Handbook for Radio Operators (Post Office 1975)
(c) The Standard Marine Navigational Vocabulary (SMNV 1985)
(d) The International Code of Signals (HMSO 1965)
(e) IMO Teaching Syllabus for Nautical English to accord with the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978 (Weeks 1979 [8])
(f) Civil Aviation Publication 413 (CAP 413 1978)
(g) Various nautical dictionaries
(h) Information supplied by:

The Admiral Makarov Higher Marine Engineering College, Leningrad, USSR
The Dalian Marine College, People's Republic of China
The National Taiwan Institute of Marine Science and Technology, Keelung
College 'Admirante Bras Aquila' Belem, Brasil
Nautical College, Kotka, Finland
Tokyo Maritime University, Japan
Arab Maritime Institute, Alexandria, Egypt
Arab Maritime Institute, Sharjah, UAE
Ecole Nationale de la Marine Marchande, Paimpol
and St. Malo, France
Fachbereich Seefahrt, Hamburg, Bremen and
Elsfleth, German Federal Republic
Fachbereich Seefahrt, Warnemünde-Wustrow, German
Democratic Republic
Istituto Nautico Technico, Livorno, Italia
Agder Maritim Hogschule, Norway

(k) Information obtained by visiting:

London Heathrow ATC
UK Air Traffic, West Drayton
Shell Brent Field
Flights with British Airways and Brymon Airways
as cockpit guests

Under the direction of Peter Strevens, Edward Johnson
carried out extensive computer research at Cambridge,
merging the complete contents of all the data collected
above. According to Johnson:
"All these were merged by computer into a single document in alphabetical order for easy access, then selected according to the following principles:

(i) elimination of basic words like ship, sea, river ... which were taken as known

(ii) elimination of uncommon highly technical words like isohaline, adiabatic, stator ...; and

(iii) standardisation of words which presently have more than one meaning, eg: channel, list, cable ...."

(Johnson 1983)

Computer-sorting produced a word list of 11,000 words, which was manually reduced by the author to 5,000 words.

These words were sorted as follows:

"The total vocabulary used in SEASPEAK comprises 3 kinds of words and expressions:

(i) The vocabulary of 'general' English. Knowledge of the non-specialised vocabulary of English is assumed, and so it is not listed in the Seaspeak Vocabulary.

(ii) Words in general maritime use. These words occur frequently in maritime communications, and are listed in Section I, as Categorised General Maritime Vocabulary.

(iii) Words in specialised maritime use. These words and expressions may occur only rarely in general maritime use, but frequently in particular circumstances or for specific communication subjects. They are listed in Section II under the relevant headings for Major Communications Subjects."

(Weeks et al. 1984 : 85)

The section "vocabulary of 'general' English", as mentioned in (i) above contains the following items:

Ship, boat and aircraft types

On-board terminology (general)
On-board terminology (parts and equipment)

Engineering

Safety, Navigation and Pilotage

Business and miscellaneous

Buoys, lights and beacons

Port and coast features and installations

The section "Words in general maritime use", as mentioned in (ii) above contains the following items:

Mayday, Pan-Pan and Securité

Search and Rescue

Collision avoidance and manoeuvring

Navigational dangers (non-Securité)

Navigational instructions (including routeing)

Navigational Information, including tides, currents etc.

Meteorological reports, forecasts and information

Movement reports

Breakdown reports

Medical Information, non-urgent

Ice

Special operation information

Anchor operation

Arrival details

Pilot arrangements

Tugs and towage

Berthing and unberthing

Departure details
Helicopter and aircraft operations
Port regulations
Telephone (telegram) link calls
Cargo and Cargo operations
Bunkering operations
Agency, business and commerce
Ship's stores
Radio checks

Whilst the computer listings were extremely useful, it was found that the manual work was considerable. The author had to reject many hundreds of words that were associated with out-of-date ships and practices, and insert a greater number of words connected with modern sea practice.

4.3 Word Choice

The author has been responsible for final word choice throughout each stage of the study. The considerations may be classified under the following headings:

(i) linguistic (phonetic, aural and syllabic structure)
(ii) semantic
(iii) common usage
(iv) professional usage
Many choices have been made using professional opinion only, but in most cases it has proved beneficial to test the available words through the flow diagram at Figure 9. Normally, this flow diagram will assist the choice-making process to give one word, but there have been some occasions when operational considerations alone have decided which word should be used. Notable amongst these have been the words used in Radar Assistance to Navigation, as specified in Chapter 5.
Reference Figure 9:

Process for the selection of a word to convey a desired meaning for linguistics in vessel traffic services

1. Define precise meaning to be conveyed
2. Within 'Nation A' does a precise professional definition exist?
3. Within 'Nation A' does the professional definition clash with the standard dictionary definition?
4. Does a precise international professional definition exist?
5. Does the international professional definition clash with professional definition for 'Nation A' (Item 2)?
6. Does the international professional definition clash with the standard dictionary definition for 'Nation A' (Item 3)?
7. Does the international professional definition clash with the standard dictionary definition for 'Nation B', same native language?
8. Does the international professional definition clash with the professional definition in 'Nation B', same native language?
9. Word search to find words to convey meaning required
10. Does a choice of words exist to convey the precise meaning required?
11. Is there a difference in the everyday meaning of any of the possible words and the professional meaning?
12. Decide whether the everyday or professional meaning of possible words is more important.

13. Is there ambiguity between the everyday and professional meaning?

14. Does the ambiguity have serious consequences?

15. Does the ambiguity express shades of the same meaning?

16. Are there phonetic difficulties with any of the possible choices?

17. Are there limitations on word due to syllable structure, i.e.: is it monosyllabic?

18. Is the chosen word acceptable professionally in source country?

19. Is chosen word acceptable professionally internationally?

4.4 Seaspeak Trials

Trials of the Seaspeak system were carried out by post and by personal visits by members of the Seaspeak team.

Personal visits were organised along guidelines constructed by the author and Edward Johnson, as shown at Appendix 6.

Visits were made to the following places:
Results of these trials are given at Appendices 3, 4, 5 and 7.

Although the trials were carried out as thoroughly as possible by the Seaspeak Team, independent results were not made available until the final part of this study, dealing with linguistics in vessel traffic services. See Appendix 8.

The trials as carried out were regarded as sufficient evidence that the basic premise of Seaspeak was sound, and, when the draft text had been suitably modified where necessary, the Seaspeak Reference Manual Weeks et al. (1984) was published in 1984, winning the Duke of Edinburgh's prize as the best non-fictional work in the English language, for that year.
CHAPTER 5 VTS Communications Language

This chapter describes in detail how special message types may be used in VTS communications, and how different levels of messages may be used for different purposes. It describes special message formats which optimise communications in specific circumstances, and gives practical examples of how these may be utilised.

5.1 Description of Study: Language Proficiency Requirements

In considering the requirements for successful communications in inshore waters, it is necessary also to consider the routes that must be followed by participants in the communication process.

Probably the most successful method, which will allow for almost every contingency, is as shown below. A non-native speaker of English is considered.

<table>
<thead>
<tr>
<th>General English proficiency to Threshold Level (Van Ek 1977)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maritime English training in Nautical College to include IMO Teaching syllabus (Weeks 1979 [B]), SMNV (1985) and Seaspeak (Weeks et al. 1984)</td>
</tr>
<tr>
<td>Further education and training in procedures, and code proficiency, in VTS communications</td>
</tr>
</tbody>
</table>

In the absence of any rigidly prescribed universal training programme, however, it must be expected that both ships' personnel and VTS personnel may join the above sequence at any stage. Thus, if they have non-existant or minimum
general English proficiency, to IMO requirements (STCW 1978: 36), they may well commence education and training at the last stage bottom box in diagram above. This will enable them to carry out routine communication tasks of an entirely predictable nature, but not to fulfil those tasks which require a more advanced level of proficiency.

Ultimately, there can be no comparison between an educational pattern which provides both linguistic proficiency and code proficiency and one which provides code proficiency only. However, the dramatic swing away from ships' manning by traditional seafaring nations has also meant a dramatic swing away from (basically) European educational standards of language attainment. Thus, pragmatically, the large majority of seafarers may soon fall into the 'code proficiency' category, even if the standard of education and training of VTS personnel continues to improve.

Therefore, a further underlying requirement had to be added to those mentioned in Section 1.4. This was:

"Must be capable of assimilation by non-native speakers with minimum IMO-designated language attainment."
5.2 Methods used in establishing the linguistics requirements of a VTS

The work programme was based on the study of the following documentation, as existing in June 1984 at the termination of the "Seaspeak for VTS" programme (Weeks et al. 1984 [B]). Revisions were incorporated as the need for them arose. These were:

- IMO SMNV (1985)
- Seaspeak for VTS (Weeks et al. 1984 [B])
- Hydrographic office charts for EEC coastal States
- Pilot books
- Other relevant official publications from National Authorities
- Published information from VTS Centres involved in Seaspeak for VTS (Weeks et al. 1984 [B]) consisting of charts, VTS operational manuals and VTS Guides. The Centres which provided such information were:
  - Antwerpen )
  - Wandelaar ) Belgium
  - Oostende )
  - CROSS Corsen/Ushant)
  - CROSS Gris-Nez )
  - Le Havre ) France
  - Marseilles )
  - St. Malo )
The information available from the sources above was found to be lacking in certain vital respects. When looking at each item on the potential list of routine communications, the author posed the following questions:

(a) What does the ITU Manual (1985) prescribe?

(b) Are there any IMO conventions, requirements or recommendations which exactly satisfy the requirements?

(c) Are there existing SMNV (1985), Seaspeak (1984) or Seaspeak for VTS (Weeks et al., 1984 [B]) procedures and message formats which exactly fulfil the requirements?

(d) Do suitable procedures and message formats already exist in an individual VTS?
(e) Which VTS has the best procedure and message format?

(f) Is this procedure and message format likely to be acceptable to all other VTS centres?

Only if no suitable procedure and message format was in existence was it deemed desirable to formulate it from first principles.

The author, as designated Task Leader of the study under COST 301 of the EEC, was solely responsible for the academic strategy and tactics employed, ably assisted by the professional expertise of the members of Task Group 7.10 (see Appendix 9).

Having identified the precise areas where information was insufficient, the author carried out the visits tabulated below to gather such information at first hand, and also to verify whether published information and procedures agreed with procedures and communication processes applied in practice. Visits were:

- Antwerpen, Belgium
- Canadian VTS Headquarters, Ottawa, Canada
- Canadian Coast Guard: VTS Regional Headquarters, Vancouver, BC, Canada
- Canadian Coast Guard: Tofino Traffic (VTS), Ucluelet, Vancouver Island, BC, Canada
- Canadian Coast Guard: Vancouver Traffic (VTS), Kapilano, Vancouver, BC, Canada
Each member of the task group also supplied additional information from his own country where required.

Having assembled the necessary information, both as regards operational procedures affecting communications and the communications themselves, the strategy for the construction of the proposed system of message formation and procedures was formulated.
Even though the communication-based services of a VTS can be classified, either through the OSI method (see Chapter 1) or through VTS functions (see Chapter 3.2), it was decided that the research programme should concentrate on the 'consumer', the ships' officer or VTS operator, in the presentation of its material for use in practical situations.

Therefore, the arbitrary classification of VTS into three types, as described in Section 3.1, was adopted.

The solutions offered in this thesis are therefore 'voyage-structured' or, in more usual terminology, situationaly structured. The overall concept is of a ship arriving from a foreign voyage, and encountering VTS Centres in the following order:

(a) Landfall
(b) Through Traffic
(c) Port

The Master of such a ship would find all of the communication procedures required for each stage of his voyage within the relevant section of his communications manual. He would only have to refer to another section in unusual circumstances, such as a failure in an item of equipment, when he would refer to the relevant section.
In the same way, a VTS operator would have ready access to the section of the communications manual specifically designed for his type of VTS Centre, and to the identical unusual circumstances section as used by the ships.

In this way, a VTS operator would not be encumbered with communications loadings which were irrelevant to his type of VTS, whereas the ship’s manual would allow smooth passage through the areas controlled by all three types of VTS.

In defining the communication procedures to be followed, emphasis was given to those functions, communication procedures and operational techniques actually observed in a wide selection of VTS centres of various sizes, complexity and types. Those items not entirely communication based, but having a direct influence on communications, were listed as 'assumptions'. Without defining these assumptions it is not possible to define communications, since the two factors are interdependent.

As illustrated in Figure 3, Chapter 1, the suggested solutions offered in this study comprise the 'Common format' in the Presentation layer.
All of the proposals have taken into account the constraints referred to in Chapter 2. Whilst it would, perhaps, be more linguistically elegant to prescribe a solution using generative language throughout, pragmatism must have primacy. Therefore a general framework has been adopted as set out on Figure 11.

**Level 1**: Most frequent messages: SLOT AND FILLER  
(ALPHA-BRAVO System)  
Proposed in this study

**Level 2**: Common messages: RIGID FORMAT  
Proposed in this study

**Level 3**: Least common messages: GENERATIVE  
Described in this study: Seaspeak

**FIG 11**

5.3 **Assumptions**

As mentioned in Section 5.2, certain operational details have to be assumed, since these have a direct bearing on the resulting communications. The general assumptions made are as follows:
A competent authority, designed to improve safety and efficiency of traffic and the protection of the environment, is operating a VTS. It may include a governmental maritime administration, a single port authority, a pilotage organisation or any combination of these. Reference is made to IMO A578/14 (1985).

Vessels participating in a VTS are fitted with navigational and communications equipment in accordance with the 1974 SOLAS convention (SOLAS 1974), as amended to 1983 (SOLAS 1983).

The decisions concerning the actual navigation and manoeuvring of the vessel remain with the Master. Neither sailing plan nor requested or instructed changes to the sailing plan can supersede the decisions of the Master concerning the effective navigation and manoeuvring of the vessel if such decisions are required, according to his judgement, by the ordinary practices of seamen or the special circumstances of the case (COLREGS [1983] Rule 2 refers).

Voluntary or compulsory pilotage may exist in the VTS area and that, in such cases, the traditional relationship between Master and Pilot is not disturbed.
Communications between the VTS Centre and the ship are established and follow the appropriate Rules in the ITU Manual (ITU 1985).

Radar Assistance to navigation of ships, given by VTS Centres, is given on request if a vessel so desires, or when such assistance is deemed necessary by the VTS Centre, for example, if a critical situation develops.

In waters outside national waters, and in open waters inside national waters, navigational assistance consists mainly of a description of surrounding traffic, warnings with respect to collision and grounding risks and, if necessary and within the jurisdiction of the VTS, advice on course. In confined waters such as fairways, within national boundaries, navigational assistance may consist of the above with the addition of position data, such as distance from a reference line or way point.

Traffic Rules may exist in certain areas. Such rules may cover the movement of ships carrying petroleum products or dangerous cargoes or may impose limitations on navigation in fairways during passing or overtaking situations. The VTS Centre may need to issue advice or ultimately instructions to ensure that the rules are complied with.
- VTS Operators have the qualifications appropriate to their tasks within the VTS and meet the language requirements appropriate to their task.

- Local traffic regulations in force, and services offered, are promulgated in a convenient form for use by all Mariners.

In general, the assumptions made above are in direct accord with IMO A578/14 (1985).

5.4 Results of the Research Programme

First attention is given to Level 1, Figure 11, 'Most frequent messages'.

In order to connect the results of this research to practice, it is proposed to imagine a ship in mid-North Atlantic Ocean, proceeding towards Europe from the Azores. She is thereafter assumed to sail towards her destination to the East of the English Channel. She will eventually enter and leave her port of destination. From the time of first contact, the vessel will be in contact with a VTS, and will make the appropriate communications with it. The VTS will consequently communicate with the ship as a reaction to the received messages, or at the request of the vessel herself.
It is also assumed that the VTS will be fully operational and that its services, boundaries and jurisdiction are fully promulgated and internationally agreed.

Following a close study of the requirements of coastal states and port authorities, it was determined that the following 'Level 1' messages were required in almost every system, and could therefore be generally suggested as a norm. Whilst it is not suggested that these messages should be used whether required or not, it is suggested that if the relevant information is required, it should be sent in the format presented.

5.4.1 Message Types

In tracing the imaginary voyage as outlined above, the following messages will usually be required:

(a) Long-Range Report

A report containing particulars of ship and cargo as required by the regulations of the Coastal State. This report will be transmitted as required by local regulations, usually at a specified number of hours before reaching the VTS boundary.
(b) Intermediate-Range Report

An update of the Long-Range Report, as required by the regulations of the Coastal State. This report will be transmitted as required by local regulations, usually at a specified number of hours before reaching the VTS boundary.

(c) Movement Report

A report sent to a VTS Centre as the ship passes certain designated reference points.

(d) Pre-entry Report

A report made to the VTS Centre or the Pilot Vessel acting as a VTS Centre, when a vessel is intending to enter harbour, or to make use of a pilotage service in the area concerned. This report will be transmitted as required by local regulations, usually at a fixed time interval before the Estimated Time of Arrival (ETA) at the specific position designated.

(e) Entry Report

A movement report made to the VTS Centre as close as possible to the time that the vessel crosses the VTS boundary.
(f) **Final Report (in-bound)**

A report to be given when a vessel leaves a VTS system by making fast in a berth, or by crossing the boundary of the VTS system into inland waters.

(g) **Pre-departure Report**

A report sent prior to making preparations to leave a berth or anchorage inside a port VTS area.

(h) **Departure Report**

A report made by a vessel, her Pilot or Agent immediately prior to leaving a berth or anchorage inside a Port VTS area, to commence a movement through that area.

(j) **Final Report (out-bound)**

A report to be given when the vessel crosses the VTS boundary into waters that are outside the system.

For a full typology of messages, see Appendix 13.
5.4.2 Message Formats

As illustrated in Figure 11 of this Chapter, it is proposed that most frequent messages should be of the 'slot-and-filler' type. These messages have the following advantages:

(a) The information contained in them is easily sorted by imposed classification headings. That is, the information is broken down into subject headings, each subject heading retaining a fixed place in the message sequence.

(b) If carefully constructed, the classification heading itself will raise the expectation level of what is to follow.

(c) The message will lend itself to transmission by any of the following methods:

- VHF Radio
- Radio Telegraphy
- Telex
- VDU-based data transmission systems

The latter two methods are especially applicable to satellite communication, and therefore are most likely to be used for the Long-Range Report, as described in Section 5.4.1.
(d) The artificial ordering and break-down of the message content results in a much reduced need for linguistic competence when using spoken-word transmission systems, and also reduces the chance of misinterpretation when using hard copy or VDU presentation.

Concurrently with this study, IMO has been working on Harmonised VTS Communication Procedures (MSC 1986) to attempt the rationalization of the various ship reporting systems in existence.

From its first proposal in 1981 the IMO Standard Reporting Format and Procedures (MSC 1986[B]) adopted an 'Alpha-Bravo' system of information ordering. The latest version of the system is contained in Appendix 10.

After consideration of all factors, it was decided that this existing IMO system was, in fact, the best that could be designed to fulfil the desiderata of the proposed research programme solution. The main reasons identified were as follows:

(a) The system fulfilled all of the design requirements proposed by the author for ease of a 'slot-and-filler' format.
(b) It is an existing and approved international system, and therefore does not have a potential (and expected) legislation delay, of at least six years, in order to obtain IMO approval.

(c) All other existing ship report systems (notably 'Surnav' France and the Anglo-French 'Marep' system) can be readily adapted to it. The embryo European Ship reporting system has, in fact, been almost wholly incorporated into the IMO system.

Therefore it was obvious to the author that it was pointless to re-invent a system which, for present technology, is difficult to improve.

Whilst the IMO Ship Reporting System (MSC 1986 [B])) is specific in its recommendations for the Long-Range Report (5.4.1 (a)), it does not take into account the requirements of any of the other reports needed by a VTS, and as specified in Section 5.4.1 above, items (b) to (j) inclusive. Therefore, part of this research has been an attempt to determine the applicability of the IMO format to the particular Reports under consideration. One of the major considerations, in this regard, has been the preservation of uniformity, so that, if possible, the mariner will only be faced with one basic system during the 'slot-and-filler' period of his voyage.

For a full typology of messages see Appendix 13.
The technique adopted to fulfil the requirements of items (b) to (j) has been to test the requirements of each report against the availability of the precise Alpha-Bravo designation from the IMO system.

5.4.3 Recommended Techniques

Considering the items enumerated in Section 5.4.1 (a), (b), (c), (d), (e) and (f), these all concern a ship approaching, and eventually arriving at, a port from seaward. The test that must be applied to each item is simple. The method used must fulfil all the criteria already suggested, and, furthermore, it must be capable of onwards transmission in the receiver nation with zero or minimum alteration.

Plain language can, of course, fulfil this function, but may be in the form of a block of information which is un-ordered in its presentation. The many different items of information which are normally required by a shore-based organisation can be presented in any sequence, with, perhaps, the most important being given low priority.

Separation of each item from all others, and clarification of the status of each item, can be achieved using the Seaspeak system. However, Seaspeak makes no firm recommendation on the precise position that each item should be allocated within the corpus of a whole message.
Such an allocation does occur within the Alpha-Bravo system adopted by IMO, and thus this system could therefore be thought to be advantageous in compartmentalising the items contained in a communicative item. Such a compartmentalisation also aids the onwards transmission of items of received information within the receiving country, because, even if local language is used, items appearing under a particular subject heading will have the same class of meaning as used in the original message from the ship.

Within this study, various methods were tried in an attempt to produce a better compartmentalised system than that proposed by IMO, but, as stated, none was found. Therefore, the applicability of IMO-prescribed subject headings within the Alpha-Bravo system to tasks outside the original scope of the system became a major item for examination.

Before the advent of VTS centres, all arrival messages from ships to port authorities were routed through the ships' agent, who therefore acted as the active partner in the ship-shore exchange, whereas the port itself acted as the passive partner. Because, however, the ship was vitally concerned that the port should have the information required, for commercial reasons, the information was supplied without fail.
A VTS, however, has a different group of functions to a port, and some may even be interpreted as being a hindrance to the commercial activities of that port. For example, a VTS is vitally interested in the passage of dangerous cargoes through its area, and may, in extreme cases, wish to prevent their transit. This may be in direct conflict to the commercial interests involved.

Traditionally, coastal VTS had no communications link, and could not expect reliable voluntary communications from ships' agents in ports that may be remote from such coastal VTS. Therefore all classes of VTS had to move away from a passive role, dependent upon an agent, to an active role, initiating their own set of desired communications items. A well-publicised and simple set of requirements is therefore essential, so that both ship and VTS have a common reference.

Such a set of requirements places the VTS in an active role, vis-à-vis the ship-shore communicative activity, since the VTS assumes the function of 'controlling station' in any exchange that may take place. The commercial factor does not disappear, however, and thus VTS systems, of whatever character, tend to increase the communications load on ships' personnel.

The stimulus necessary to produce the desired information from the ship can be applied in a number of ways:
(a) By requiring that the ship call in when reaching a particular geographical position, relying on internationally circulated requirements. Generally, such requirements should indicate that the reporting-in system is 'voluntary' when the ship is in international waters, although the message used may be so worded that the mariner believes that a certain degree of persuasion is being exercised. This research showed that different nations take quite dissimilar views on the use of language in this way, and that attitudes vary in direct proportion to the amount of coastal pollution suffered in the recent past.

Within national waters, however, where sovereignty is not in doubt, the requirement may be absolute, and is often supported by a fine for non-compliance. Thus the use of language, in VTS, can prevent a fine, or cause it to be levied. In today's manning situation, such a fine could cause a shipmaster's career to be put in jeopardy, and therefore adds importance to the correct execution of the communications task.

The suggestion made by this research programme is that published information based on this stimulus should take the form:

"Eastbound vessels should report in on crossing a line joining Cape Trafalgar and Cape Spartel."
(b) By requiring that a ship call in at a given time interval before reaching a certain geographical position, relying on internationally circulated requirements.

The suggestion made by this study is that published information should take the form:

"Eastbound vessels should report in two hours before crossing a line joining Cape Trafalgar and Cape Spartel."

Whilst this method seems to have attractions, the time interval makes the distance away from the VTS Centre dependent upon the speed of the ship. For commercial vessels, this could be between 8 and 26 knots.

VHF communication is line-of-sight, and a 26 knot ship is almost certain to be out of VHF range at 52 miles. Thus the message passed will be subject to 'break up', and satisfactory communications will not be possible. This study recommends that this method should not be used.

(c) By the visual or electronic identification of an individual ship, followed by a radio message to that individual ship.
As mentioned elsewhere, this research has endeavoured to examine the circumstances in which a communicative exchange takes place, as well as the exchange itself. It is suggested that the exchange is entirely dependent on the circumstances, and that the original circumstances will not be influenced by the exchange, although future events almost certainly will be.

Before any exchange can take place, it is necessary for each participant to positively identify the other, both from a practical standpoint and by the ITU Rules (ITU 1985). The propagation characteristics of VHF would otherwise ensure that, in an area such as the Dover Strait, several hundred ships would receive, and possibly react to, a message addressed to 'unidentified ship'.

If a ship perceives a commercial advantage in making contact with a VTS Centre, then she will certainly make that contact. When, however, the VTS is acting in a surveillance mode it is frequently in the ships' interest to remain anonymous, for example, when contravening an IMO Traffic Scheme (COLREGS 1983, Rule 10) in fog.

In fog conditions, visual identification is impossible, and such techniques as thermal imaging and the use of secondary radar must be considered. This
research programme determined that thermal imaging is only able to provide a ship type, not a name, and that ship owners are not prepared to allow secondary radar to be fitted. The reason given is that such equipment may give positive identification of their ships, worldwide, to any other suitably equipped station. This would be an enormous advantage to VTS Centres, but could give an unfair commercial advantage to competitors, in the shipowners' view.

Thus, at the moment, no satisfactory visual identification of errant vessels can be made, except by the use of aircraft or helicopters, as practiced off the coasts of some nations.

The applying of stimuli to produce the required information is therefore ultimately dependent on the voluntary co-operation between VTS and ship, unless the VTS is prepared to apply expensive sanctions. Thus, before the communicative process can take place, the ship needs to be convinced that the process is logical, efficient and advantageous to it.

Having established contact with an individual ship, a VTS must then decide what form the necessary interrogation should take, to elicit the desired information. The interrogation may take one of the three forms described as follows:
(a) Individual questions. These would take the form of 'What is your course?', producing an answer such as '087 degrees'. Each question would be contained within the designated radio procedural rules, applied to Simplex working.

Since the number of answers required is normally over 12 on first contact, 5 thereafter, the amount of air time taken up is considerable. Further, the conversation is not highly structured, the sequence of questions being at the discretion of the interrogator, the VTS operator. The ship is therefore less prepared to give the answers required, and further delays may occur whilst these are determined.

Even if Seaspeak is used, this research ascertained, during the trials period, that this is not the most efficient method possible, particularly for non-native speakers.

(b) A multi-subject question. This might take the following form:

1. Are you carrying dangerous or pollutant cargo?
2. Do you have deficiencies or defects in cargo, hull, machinery or navigation and radio equipment?
3. What is your position, course and speed?
4. What is the present weather?
This type of question would be asked over VHF radio, and the order of the questions would be at the discretion of the VTS operator. Not only could the order vary, but the wording of individual questions is unlikely to remain constant worldwide, as is the subject material chosen in any individual situation.

Writing at a VHF position on the bridge is usually difficult by day, impossible by night, and some items within the question could therefore be forgotten.

Again, this was found to be an inefficient and time-consuming system, and could not be recommended. Even the question 1, above, could be interpreted as requiring a simple yes/no answer, or, perhaps, a full list of cargo subject to the IMDG Code (IMDG 1981).

(c) A fully-structured, fixed-format, 'Alpha-Bravo' system, of the 'slot-and-filler' type, as discussed earlier in this section.

Research within this programme has shown that this is the most effective system. The initiative in obtaining this report still remains with the VTS, through its published requirements, but the ship, as stated, has the opportunity for message preparation at leisure.
The individual items enumerated in Section 5.4.1 (a), (b), (c), (d), (e) and (f) can now be considered separately.

5.4.4 Specific Scenarios

Long-range report (5.4.1 (a))

As mentioned, this report is usually the first contact which an inbound ship makes with the VTS, and its contents are likely to be detailed. The most effective method of transmission is likely to be TELEX.

A typical Long-Range Report, of the type recommended, is shown below.

General Scenario: First message to a Port VTS

Detailed Scenario: The container ship Sierra Express, outward bound from Europe, is shortly to make her last port call at Liverpool. She is near Land's End, and will be at the Pilot station at 07.00 next morning. She has on board a variety of dangerous cargo and 26 persons. She has a draft of 8.96 metres, and is steaming 265° at 14.5 knots. Her agent in Liverpool is Hapag Lloyd UK, Liverpool, and her next report will be made off Bardsey Island.
**Message generated:**

Liverpool Traffic Telex

Long-Range Report

<table>
<thead>
<tr>
<th>A</th>
<th>Alpha</th>
<th>SIERRA EXPRESS DNCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Bravo</td>
<td>02 0845 UTC</td>
</tr>
<tr>
<td>C</td>
<td>Charlie</td>
<td>49° 57'N 03° 28'W</td>
</tr>
<tr>
<td>D</td>
<td>Delta</td>
<td>Nil</td>
</tr>
<tr>
<td>E</td>
<td>Echo</td>
<td>265 degrees</td>
</tr>
<tr>
<td>F</td>
<td>Foxtrot</td>
<td>14.5 knots</td>
</tr>
<tr>
<td>G</td>
<td>Golf</td>
<td>Le Havre</td>
</tr>
<tr>
<td>H</td>
<td>Hotel</td>
<td>Nil</td>
</tr>
<tr>
<td>I</td>
<td>India</td>
<td>Liverpool ETA Point Lynas 03 0700 UTC</td>
</tr>
<tr>
<td>J</td>
<td>Juliet</td>
<td>Pilot required</td>
</tr>
<tr>
<td>K</td>
<td>Kilo</td>
<td>Nil</td>
</tr>
<tr>
<td>L</td>
<td>Lima</td>
<td>Nil</td>
</tr>
<tr>
<td>M</td>
<td>Mike</td>
<td>VHF Ch 16</td>
</tr>
<tr>
<td>N</td>
<td>November</td>
<td>Off Bardsey Island</td>
</tr>
<tr>
<td>O</td>
<td>Oscar</td>
<td>8.96 metres</td>
</tr>
<tr>
<td>P</td>
<td>Papa</td>
<td>IMDG Class 1 2834 kilos</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Class 2 5614 kilos</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Class 3 64390 kilos</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Class 4 18555 kilos</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Class 5 25946 kilos</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Class 6 276008 kilos</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Class 7 NIL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Class 8 80566 kilos</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Class 9 243931 kilos</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total 717844 kilos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T</th>
<th>Tango</th>
<th>Hapag Lloyd UK, Liverpool</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>Victor</td>
<td>Nil</td>
</tr>
<tr>
<td>W</td>
<td>Whiskey</td>
<td>26</td>
</tr>
<tr>
<td>X</td>
<td>X-ray</td>
<td>Nil</td>
</tr>
</tbody>
</table>

**Intermediate Report (5.4.1. (b))**

The Long-Range report detailed above is the only report for which an international format has been agreed. But it fulfils only one small part of the reporting requirement that is normally placed on a ship. Part of the function of this research programme has been to examine the
applicability of individual items from the Long-Range Report to other individual reporting tasks, and to suggest solutions to problems found.

If the Long-Range Report is sent as suggested, by Telex, and several days before entering the VTS area, then it is very possible that the ships' ETA will be seriously in error. Identification of individual ships on the VTS Radar does depend, as mentioned, on the time that an individual ship reaches a certain position.

An update of ETA is essential, and this can successfully be made by updating one single Item in the Alpha-Bravo system, as shown below.

**General Scenario:** Update message to a Port VTS.

**Detailed Scenario:** The container ship Sierra Express, mentioned above, is 2 hours late. She informs the Pilot.

**Message generated:**

Liverpool Pilot. This is Sierra Express Intermediate Report

I India ETA Point Lynas 09.00
Movement Report (5.4.1 (c))

Movement reports have two basic functions:

(a) to enable the VTS operator to more easily track the movement of vessels in the system,
(b) to assist the VTS operator in the organisation of traffic at complex points in the system.

As has been explained, positive identification using equipment entirely in the control of the VTS is not easy. Therefore the movement reports which are a feature of most VTS systems are an essential feature of the operation.

Even within the limited variance predictable, however, this research programme found a large number of different orderings of information suggested by the authority concerned. A standard set of items was therefore suggested, consisting of the following:

Ship's name
Date/Time group
Waypoint name and number, and ship's bearing and distance from same
Ship's course
Ship's speed
Research was then carried out to confirm that the 'Alpha-Bravo' system would successfully present these items in the most effective manner and this was found to be so. A typical message so produced is shown below:

Scenario: The ship Gaynor W is approaching the entrance to the River Weser, and is reporting in at Waypoint 22. Her speed is 19 knots, her course 120°.

Message generated:

Bremerhaven Revier. This is Gaynor W
Movement Report
A Alpha Gaynor W
B Bravo 16 07 15
C Charlie Waypoint 22 Bearing 015° from S Reede
Buoy distance 1 decimal five miles
E Echo 120 degrees
F Foxtrot 19 knots

Pre-entry Report (5.4.1 (d))

In common with Movement Reports, the Pre-entry Report, and all subsequent reports made inwards-bound, is most likely to be transmitted by VHF radio. The likelihood of a message being passed by means of Telex, or any other system giving hard copy, significantly decreases, and therefore the necessity for absolute verbal clarity increases to a maximum.
This report is required by almost every port having a VTS, whether that VTS is equipped with radar or not. Generally, the VTS centre has been supplied with particulars of any dangerous cargo on board via the Long-Range Report (direct from ship) or via the Agent, so details of same are not usually required again. But the list of required items does vary widely, as does the format currently suggested by different ports. For example, one major port publicises its requirements as follows:

(a) Name of vessel
(b) Call sign
(c) Nationality
(d) Gross Register Tons and length
(e) Draft
(f) Destination
(g) ETA
(h) any Special Details

Other ports require a list of items which varies from the whole content of the Long-Range Report to the ETA and draft. As previously mentioned, large groups of unordered items of information can be extremely confusing, particularly when transmitted by voice. The Seaspeak system limits the number of discrete items of information per message to two, for example, and would therefore make transmission of an extended list of items a lengthy task, though a reliable one.
Research into all the possibilities, within this research programme, showed that an Alpha-Bravo system could remove all arguments on the priority of one item over another, and that it could also cater for the varying lists of items required by different ports. If a group of items is not required, then the alphabetic is simply left out. For example:

<table>
<thead>
<tr>
<th>Port A</th>
<th>Port B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Items Required</strong></td>
<td><strong>Items Required</strong></td>
</tr>
<tr>
<td>Name of vessel</td>
<td>Name of vessel</td>
</tr>
<tr>
<td>Time</td>
<td>Call sign</td>
</tr>
<tr>
<td>Position</td>
<td>Nationality</td>
</tr>
<tr>
<td>Course</td>
<td>Gross Register Tons and length</td>
</tr>
<tr>
<td>Speed</td>
<td>Draft</td>
</tr>
<tr>
<td>Last port of call</td>
<td>Destination</td>
</tr>
<tr>
<td>ETA</td>
<td>ETA</td>
</tr>
<tr>
<td>Destination</td>
<td>Special details</td>
</tr>
<tr>
<td>Intended Track</td>
<td><strong>Alphabets</strong></td>
</tr>
<tr>
<td>Radio Communications</td>
<td></td>
</tr>
<tr>
<td>Draft</td>
<td>Alpha</td>
</tr>
<tr>
<td>Dangerous cargo</td>
<td>Bravo</td>
</tr>
<tr>
<td>Defects on board</td>
<td>Charlie (or Delta)</td>
</tr>
<tr>
<td>Pollution record</td>
<td>India</td>
</tr>
<tr>
<td>Weather conditions</td>
<td>Oscar</td>
</tr>
<tr>
<td>Ship's Agent</td>
<td>Uniform</td>
</tr>
<tr>
<td>Miscellaneous items</td>
<td>X-ray</td>
</tr>
</tbody>
</table>

**Alphabets**

Alpha | Bravo
---|---
Charlie (or Delta) | Foxtrot
Echo | Golf
Golf | India
India | Mike
Mike | Oscar
Papa | Quebec
Papa | Romeo
Romeo | Sierra
Tango | "X-ray"

(see Appendix 10 for full designated meanings of alphabetics.)
This report is frequently used to activate a whole series of events connected with the ship's arrival. For example, a system having more than one VTS Centre would use this report to apprise other Centres of the ship's arrival, probably by a VDU based system. The final Centre, on the ship's inward route, would use the message content to appraise tugs, linesmen and other services of the ship's arrival.

The Pre-entry Report is likely to be the first juncture at which the ship requires positive information regarding her future activities. Therefore the Pre-entry report is likely to stimulate a response from the VTS Centre which may include such items as:

- Which pilot station the vessel must use
- Expected time of pilot rendezvous
- Which sector of the VTS boundary the vessel is expected to use
- Side and height of the pilot ladder
- Allocated number of tugs
- Allocated berth number

My research study determined that there are several ways in which a response carrying the required information can be structured, and the following points were noted:
It is difficult to use an Alpha-Bravo report system for a response, because the necessary items do not fit comfortably into any approved system. Similarly, it proved impossible to produce a logical Alpha-Bravo system which is flexible enough to cope with the possible message content.

A 'free' response format is not thought acceptable, since it would increase the communications confusion which the whole system is designed to reduce.

It is possible to arrange the response message into the same order as the original information received from the ship, any additional information being given in decreasing order of importance. Such a message should be carefully constructed, using the techniques of the Seaspeak system.

An example of a Pre-entry Report and its appropriate reply is given below:

Scenario: The ship Gaynor W is approaching the (mythical) port of Chaudron d'Enfer from the North West, and sends her Pre-entry Report.
Message generated:

Chaudron d'Enfer Traffic. This is Gaynor W

Pre-entry Report
A  Alpha  Gaynor W
B  Bravo  01 02 15 UTC
I  India  ETA 05 30 UTC
L  Lima  Approaching from North West

This message generates the following response, both response and message being constructed according to the suggested format determined by research.

Gaynor W. This is Chaudron d'Enfer Traffic

Understood:  Your ETA 05 30 UTC approaching from North West
Information:  You can take Pilot near North Buoy at 07 20 UTC
Information:  You must rig pilot ladder on port side
Advice:  Use entry sector Bravo.

Entry Report (5.4.1 (e))

Entry reports fulfil the following functions:

- To finally confirm the identity of the radar echo of the vessel concerned, and, if the VTS Centre is suitably equipped, to 'flag' the radar echo with the ship's call sign or other identification.
To enable the VTS operator to efficiently organise pilotage for the vessel concerned, if this has not already been done.

To alert the VTS operator to the possibility of a request for assistance to navigation. Such a request is possible in low visibility or similar circumstances, and may necessitate an increase in the number and level of personnel in the VTS Centre.

At the time when the Entry Report is made, navigational pressures on ship's staff will be at their highest point, and therefore communications must be kept to a minimum. Once the Pilot has boarded, the navigational load on ship's staff will ease, but this does not normally occur until after the Entry Report has been made.

My research determined that the number of items required may be reduced to the following:

(a) Ship's name
(b) Time
(c) Entry point into the system, expressed as a boundary sector designator, or expressed by vessel's range and bearing from a prominent navigational mark.
Using the techniques already described, an example of an Entry Report and its appropriate reply might run as follows:

**Scenario:** The ship Gaynor W continues her voyage inwards to the Port of Chaudron d'Enfer, taking the advice offered by Chaudron Traffic.

**Message generated:**

Chaudron d'Enfer Traffic. This is Gaynor W

Entry Report

<table>
<thead>
<tr>
<th>Alpha</th>
<th>Gaynor W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bravo</td>
<td>01 06 45 UTC</td>
</tr>
<tr>
<td>Hotel</td>
<td>01 06 40</td>
</tr>
</tbody>
</table>

Boundary Sector Bravo

This message generates the following response, both being in the format suggested by this my research:

Gaynor W. This is Chaudron Traffic

Understood: Boundary Sector Bravo. Inbound

Information: I have located you on my radar

**Final Report (in-bound) (5.4.1 (f))**

Vessel Traffic Services may be compared with air traffic control also in the way that the units of transport concerned have different movement status. Aircraft have three
status types; in flight, moving on the ground, or stationary at a gate or park place. Ships have three status types also, for VTS purposes: moving, at anchor, or fast alongside.

These three different status types demand different levels of awareness from a VTS operator, and it is essential that a ship inform him of any change that may demand an increase, or suggest a decrease, in his vigilance concerning one particular ship.

The Final Report (inbound) fulfils this purpose, and allows the VTS operator to remove the ship from his 'active' panel and place it on his 'in port' panel, probably utilising a plan of the port.

A typical message and response is given below, using the items:

(a) Ship's name
(b) Date/Time
(c) Appropriate boundary place name, or berth name

Scenario: The ship Gaynor W is now all fast in berth 15 at Chaudron d'Enfer. She 'signs off' from the VTS active list.
Message generated:

Chaudron d'Enfer Traffic. This is Gaynor W

Final Report

A Alpha Gaynor W
B Bravo 01 17 20 local
K Kilo 01 17 05 All fast in berth 15

The response generated is:

Gaynor W. This is Chaudron Traffic
Understood: All fast in berth 15
Out

The items enumerated in Section 5.4.1 (g), (h) and (j) may now be considered.

Prior to this research, no formal considerations had been given to the communications problems affecting a ship about to leave her berth outward-bound. Traditionally, a ship's Agent has always been available to make the necessary arrangements prior to the ship's departure. In large modern harbours, where the ship may be remote from the local town, it is frequently impossible for the agent to carry out the required communications tasks. Further, some VTS Centres demand information direct from the ship concerned, to be sent either by VHF or telephone.
The information demanded is required for the same basic reasons as for an inbound vessel:

- A Pilot must be provided
- All services attendant on sailing must be alerted
- The fairway must be clear for the ship to enter
- The ship must be entered on the VTS 'active' list
- Necessary formalities must be checked
- Pollution controls must be checked

**Pre-departure Report (5.4.1 (g))**

The arguments for a highly organised and carefully structured format for a Pre-departure Report (5.4.1 (g)) are basically the same as for a Long-Range Report. If telephone or telex is used, then the pressure on air-time is not so great, but if VHF is used then every time economy possible must be made.

Many of the items contained in the Long-Range Report and the Pre-departure Report have the same common information content. That is, the VTS will require to know what dangerous cargo the ship is carrying, and what is her draft, in both reports. The task of this research, therefore, has been to make suggestions on a complete structure for the Pre-departure Report, using as many items as possible which have identical meaning in the internationally accepted Long-Range Report format.
The changes found necessary were as follows:

A Alpha Same
B Bravo Same
C Charlie Position as referred to berth name or number, not latitude and longitude
H Hotel ETD (Estimated Time Departure) instead of entry time into system. Note: the ship does enter the system on departure
I India Same, but destination may be another berth or place inside the VTS system
J Juliet Same
L Lima Same
O Oscar Same
P Papa Same
Q Quebec Same
X X-ray Same

Thus a new and efficient system can be utilised, making use of elements which are universally recognised and understood.

Scenario: The ship Vikki W is due to finish taking bunkers in one hour, prior to sailing from Langeliniekai, Copenhagen. She requires a Pilot at completion of bunkers, and has a draft of 8.5 metres. She has a variety of dangerous goods on board, and will follow the main fairway out of harbour. She has no defects.
Message generated:

Copenhagen Traffic. This is Vikki W

Pre-departure Report

A Alpha Vikki W
B Bravo 07 20 30 local
C Charlie Langeliniekai
H Hotel 07 22 10 local
I India Japan
J Juliet Pilot at 21 30 local
L Lima Main Fairway
O Oscar 8.5 metres
P Papa IMDG Class 1 10000 kilos

Class 4 6976 kilos
Class 8 9276 kilos
Total IMDG 26252 kilos
Q Quebec Nil
X X-ray Loading bunkers complete at 21 30 local

Departure Report (5.4.1 (h))

The Pre-Departure Report, above, is designed to alert the VTS Centre of impending departure, so that tugs, Pilot, line handlers and others concerned with the physical task of moving the ship are provided, and are ready at hand at the correct time.
Once the ship is 'singled up', and ready to sail, the problem becomes organisational. The river or dock must be capable of accepting the ship as an item of moving traffic, and any movement made must not interfere with the passage of a passing ship.

My research confirmed that attitudes and traditions play a very large part in determining the exact semantics of a departure report. Is the ship announcing her departure, or is she requesting permission to do so? The answer is suggested as having a marked effect on the relative status of those on board, and the VTS operator.

Since, however, the Port VTS operator is usually employed by the owners of the port, or by the nation concerned, he normally has the right to refuse a ship entry into the VTS system. Therefore he can refuse the right for the ship to sail.

This research determined that a ship's departure message is semantically requesting permission to sail, whether the exact words are expressed or not, and that the VTS will respond with a message which will give or refuse a clearance to sail (see definition of 'clearance', this section, below). Research confirmed the items that should normally be included in the Departure Report to be as follows:
(a) Ship's name
(b) Date/Time group
(c) Name/number of berth/anchorage
(d) Departure time
(e) Destination
(f) (Request for clearance, if deemed necessary)

Using the techniques described, an example of a Departure Report and its response is given below:

Scenario: The ship Vikki W is alongside in Copenhagen, and will shortly be sailing for Japan, and requests clearance.

Message generated:

Copenhagen Traffic. This is Vikki W
Departure Report
A Alpha Vikki W
B Bravo 07 22 15 local
C Charlie Langeliniekai
H Hotel 07 22 20 local
I India Japan
Request clearance

The response generated is:
Vikki W. This is Copenhagen Traffic

ETD 22 20 local

Information one: You are cleared to depart

Information two: A large tanker is securing at the river berth. Inbound ferry passing buoy number Sierra One

Final Report (out-bound) (5.4.1 (j))

This report is designed to enable the VTS operator to remove the ship from his 'active' list, as she proceeds towards deep sea.

Developments in VTS operations, however, suggest that this report may be used to 'pass on' the ship to a VTS system covering a regional or global area. Chains of coastal VTS Centres already in use do, in fact, form embryo regional systems. Further regional developments are planned, particularly in countries bordering the Mediterranean Sea.

The items determined confirmed by my research as essential are:

(a) Ship's name
(b) (Date) Time group
(c) Appropriate boundary place name, or geographical position
Example is given below, with response.

Scenario: Ship Gaynor W is leaving the limits of Chaudron VTS system at Sector Charlie.

Message generated:

Chaudron Traffic. This is Gaynor W
Final Report
A Alpha Gaynor W
B Bravo 03 10 15 UTC
K Kilo Leaving Chaudron VTS system Sector Charlie

Response:

Gaynor W. This is Chaudron Traffic
Understood: Leaving Chaudron VTS system Sector Charlie
Out

Broadcasts from the VTS to all ships in the vicinity are usually made at fixed intervals, and form part of the 'Information Service' provided by many VTS, particularly in coastal areas. The broadcasts may also be made at the request of a vessel, and may be at more frequent intervals, particularly in poor visibility.
The information broadcast may include any or all of the following:

(a) Weather information
(b) Navigational information (including tides, currents etc.)
(c) Traffic information
(d) Safety information which will include:
   - published notices to mariners
   - status and conditions of aids to navigation
   - obstructions to navigation
   - major routeing changes and other organisational changes
   - movements of vessels with exceptional characteristics

Previous to this research, there has been no attempt to organise this information into any sort of fixed pattern designed to increase comprehension expectancy and intelligibility. Because broadcasts of this type are purely routine, it is suggested that the information should be organised into an 'Alpha-Bravo' system, with particular items always appearing under the same headings.

The ordering suggested is:

A Alpha Repeat of current urgent messages
   (Navigational warnings) previously broadcast separately, prefixed by SECURITÉ
B Bravo Meteorological information

C Charlie Navigational information (lights, buoys, beacons, navigational systems)

D Delta Hydrographic data (sea level, maximum/minimum tidal levels, tidal current data)

E Echo Traffic information

F Foxtrot Movements of vessels with exceptional characteristics

G Golf Traffic routeing and organisational changes

H Hotel Pilotage and tug service information (availability, suspension, meeting points)

Typical messages generated by this system are shown in Appendix 13.

'Level 2 messages', as mentioned in Figure 11, can no longer be of the IMO standard message type, since they are no longer of a purely informative nature, but have some sort of interaction between the two interlocutors concerned. These messages may move away from the pure 'information' message marker definition (Section 4.2.3) through the 'advice' definition, perhaps to the
'instruction' message marker definition. Thus their semantic content is likely to be at a much higher level than that of a 'Level 1' message, where comprehension is likely to depend on a thorough knowledge of maritime equipment and cargo terminology rather than on an appreciation of hidden intrinsic meaning.

It is at this message level that the VTS is likely to start exercising its function as an enforcement agency of the coastal State, perhaps with the full power of that State at its immediate call (See Section 3.2). Such power may range, in practice, from a fine on arrival at destination port in the offended country, to immediate intervention by Naval forces.

Certain coastal states feel that it is necessary to exercise their right to control, in some way, the quality of the ships and cargo which enter their territorial waters. This can be done in a passive way, by Level 1 communications, or the authority, working through the VTS, may decide on a more positive approach by making the Long-Range Report a pre-condition before granting permission to enter a certain sea area.

In the same way, a port VTS may decide that it is prudent for every ship to request permission to enter a certain stretch of fairway, or to sail from a berth, before actually crossing an imaginary boundary into the area concerned.
The concept of 'permission' being given to enter a given area was discovered to have several different meanings:

(a) "You can enter the area because it is perfectly clear for you. Because we say so, it is so, and we take responsibility for that."

(b) "No one has told us that he is on that stretch of fairway. So we suppose it's clear."

(c) "So far as we can tell, the stretch of fairway is clear, and you can legally proceed. But it is at your discretion that you do so, and you must continue to take every precaution."

Given these alternative interpretations, the word 'permission' was found to fail the word selection test (Figure 9) because it was widely interpreted as having meaning (a) above, which is certainly not according to the wishes of most VTS Authorities.

Interpretation (b) constitutes negative reporting, i.e. "all is well unless there is positive proof that it is not". This attitude is completely unacceptable to prudent professional mariners, who are much inclined towards positive reporting "we will not presume things are in order until we are specifically told that they are". Acceptance of negative reporting has produced disaster, as in the Herald of Free Enterprise incident (DTp 1987).
During my research the semantic interpretation (c) was found to be the only one acceptable to VTS Authorities and ship's personnel alike. A direct analogy may be made between the interpretation and a green traffic signal, which signifies that the driver may legally proceed. What the green light does NOT indicate is that the road (fairway) ahead is clear, and that, therefore, the driver must proceed with extreme caution, bearing in mind all traffic conditions and laws.

Following research carried out in Canada (see Section 5.2 above) the author discovered that an acceptable technique and definitive word had been in use in Canada for some years, under the Canada Shipping Act (1985).

The word used is the same as that employed in Air Traffic Control, where the meaning of 'clearance' has been explained by Field as follows:

"In simple terms this means that no aircraft is allowed to enter controlled airspace without having been given a clearance (instruction) to do so by the air traffic control authority responsible for that airspace."

(Field 1985 : 18)

The Canadian definition is:

"A traffic clearance is an authorisation for a ship to proceed subject to such conditions as may be included in the authorisation. The clearance is predicated upon ship report information and known waterway/traffic conditions. A traffic clearance does not supplant other authorisations required by legislation or by-laws."

(Canadian Coast Guard Notices 1986)
The author found, by investigation of available literature and current practice, that the Canadian definition above was not sufficiently explicit for international use and comprehension, and recommends the following:

'A CLEARANCE gives permission for a vessel to proceed subject to conditions which may be contained in the clearance message. The giving of a clearance is based upon details received from the ship, and known fairway and traffic conditions.

A clearance is issued for safety purposes only and does not supplant other regulations existing under international, national or local regulations.

The receipt of a CLEARANCE means that a vessel may then proceed on her intended course of action, at her discretion.'

Because the misinterpretation of the word 'clearance' has such potentially serious consequences, some linguistic device must be used to prevent a ship from thinking she has received clearance, when, in fact, clearance has been denied.

Two illustrations by Turner and Nubold (1981) illustrate this:
(i) "In the Stuttgart incident the phrase 'eight zero clear' was intended as a question but was understood by the controller to whom the request was addressed as a statement that the referred to altitude was now free for other traffic. A DC9 was directed into the air space and a near collision occurred at eight thousand feet (the two planes were at a maximum distance of 400 metres apart)."

(Bundesanstalt 1978)

(ii) "An air traffic control instructor has reported an incident in which a German Air Force transport flight received taxi clearance to the holding position where it was to wait until after the arrival of a routine BEA machine on a crossing runway. The official speech group is: 'Cleared into position and hold' whereafter the pilot awaits the phrase 'Cleared for take-off'. In the incident in question the controllers instruction read: 'Cleared into position and hold; stand by for take-off'. The pilot heard the word 'take-off' and immediately released his brakes and started his take-off roll."

(Turner and Nübold 1981:11/17)

The experience of air traffic control acted as a strong caveat in the construction of this new system. Thus my research leads me to suggest that a clear distinction should be made between messages which give clearance and those which deny clearance. In the context of VTS any message which grants clearance should begin "Information: you are cleared to ......." This means that the word 'cleared' will only be contained in a message that gives clearance. The vessel may then proceed on her intended course of action, at her discretion.
As in every situation where the recipient of a signal is waiting to act on that signal, 'false starts' may occur with clearances. Many cases have been recorded in air traffic control where the pilot's expectancy of receiving the advice to take off has been triggered by the word 'cleared', and he has started to roll on receiving that word. Thus it was decided that the word 'clearance' or 'cleared' should only appear in messages granting clearance and not in messages denying clearance. Thus, any message denying clearance should begin with the message marker 'Instruction' followed by:

either the words 'do not',
or a word which refers directly to the activity denied.

When a ship is approaching an unknown harbour or coastal sea area, it may not be obvious to the ship's Master whether a clearance is needed or not. National requirements vary enormously, and means of promulgation are not always satisfactory. Research has shown that nations are sometimes unforgiving in their attitude towards miscreants, and that fines of up to $5000 have been imposed for failing to carry out correct procedures on approaching a VTS area.

In this case, a simple interrogative message containing the phrase "Is clearance required" is advocated.
For a full typology of messages see Appendix 13.

Level 2 messages are also used when precise navigational information on the ship's own dynamics are being transmitted to her.

As mentioned in Chapter 4, air traffic control used to give precise directions to pilots in order to make landings possible in poor visibility. Such a technique is still used at some airports, the author having experience in the co-pilot's seat during such a landing on a commercial aircraft (Plymouth-Gatwick, Twin Otter).

The same technique as is used in air traffic control was considered for use in Vessel Traffic Services, but several considerable objections have been raised, mostly on legal grounds.

Therefore, a new technique was necessary to take into account the vagaries of ship operations, and the language associated therewith.

The task to be fulfilled is as follows:

How does a VTS operator give a ship precise indications of its status with regard to position, course and speed in confined waters where a pilot would normally be on board, and offering the Master advice on the conduct of his ship?
Following the research techniques already described, it was decided to base research on the system developed in the River Schelde, Netherlands/Belgium (Radarkaart Schelde 1982), as described below.

All of the messages suggested come under the general heading 'Radar Assistance to navigation'.

The problem is threefold:

(a) How to give the ship her lateral position in the fairway, and to what reference point.

(b) How to give the ship her longitudinal position in the fairway, and to what reference point.

(c) How to alert the ship to the fact that she is approaching a point where a change of course is advised, and what that change should be.

Solutions suggested in the Netherlands/Belgium "Joint Proclamation" (Joint Proclamation 1982) were as follows:

"Radar Messages"

(a) A mention of position of a ship (or any other object) must always consist of two data, namely: up to what point in the direction of the fairway the ship has proceeded and the distance of the ship in transversal line, measured to the local usual navigation line (eg: radar line, lights line or buoys line) or to the shore.
(b) On the appendant chartlets (Note: Radarkaart: Author) (working areas of VHF Stations) the radar lines are drawn. Radar lines are fictitious lines running practically mid fairway or (if nautically possible) indicate existing light lines. The number of the radar line indicates the drift of the fairway in upward direction.

On 300 metres from the secant of the two radar lines there are segments of a circle. The distance across to the radar line are given for respectively the red or green side of the fairway.

The distance covered in the direction of the stream upto the most common navigation mark (buoys, beacons etc.) is given.

At 300 metres from the intersection of two radar lines the ship is attended to it."

(Joint Proclamation 1982 : Para 6)

Work carried out by the author and the Seaspeak team between 1983 and 1985 indicates that certain of the terminology used above was unacceptable in some administrations responsible for VTS.

The use of the words 'Radar line' proved to be ambiguous since it seemed to indicate the use of a radar homing device, or perhaps the signal from a RACON or radar responder beacon.

Hence the words 'Radar reference line', later shortened to 'reference line' were suggested by the author and incorporated in Guidelines for Vessel Traffic Services (IMO 1985).
"In confined waters navigational assistance will usually also include position data (eg: distance to a 'reference line' or to a 'waypoint')."

(IMO A578/14 : Para 5.4)

The specification of a ship's transverse position in a fairway gave rise to the single most difficult semantic word-choice problem in the whole research programme. After putting the candidate words through the tests indicated in Figure 9, it was found that there were two pairs of candidate words to express the desired meaning. These were:

(i) Port and Starboard
(ii) Red and Green

The original Netherlands/Belgium research (see above) gave 'Red and Green' as the choice, but gave no reason.

After discussion with the group of experts listed in Appendix 9, it was decided that 'Port and Starboard' would be a better choice. However, this produced problems. A reference line is given the name of the course to be steered to maintain the centre of the fairway when the ship is entering harbour. Suppose that the reference line concerned was from West to East. It would therefore have the name 'Reference line 090'. If the ship concerned was in-bound, and was to the South of this line it would be to the side of the fairway designated as 'green' and would therefore be sent a message by the VTS such as "... 300 metres green from reference line 090".
If, however, the ship mentioned above was out-bound, and to the South of the reference line, then the message that she should receive would be "... 300 metres red from reference line 090", since red is that side of the fairway which lies on the port side of the ship. It is therefore absolutely essential, in this system, for the VTS operator to always remember whether the ship that he is assisting is in-bound or out-bound. Further, red and green could be confused with fairway buoy colours.

The choice was then placed before a wider forum of VTS authorities, and both pairs of words came under criticism. VTS authorities of fairways lying East-West chose to use 'North-South' to indicate transverse direction, those with fairways lying North-South chose 'East-West'. In some cases the authorities indicated that they would only change if a system was clearly superior and unambiguous.

The word pair 'Port and Starboard' were also found to be unsatisfactory, since, although the terms could not be confused with buoy colours, it was again necessary for the VTS operator to always remember whether a ship was in-bound or out-bound.

However, all European waters are buoyed according to one standard buoyage system, known as IALA 'A', which places green buoys to the right of the entrance fairway, red to the left. Mariners are accustomed to the fact that green
buoys are to starboard entering harbour and red buoys are to starboard leaving harbour. The author suggested, therefore, that reference line messages should be related to buoy colour. This was accepted, since in this system there is no need for the VTS operator to remember whether the ship is in-bound or out-bound. The navigation of a ship, particularly an out-bound ship, must remember that her transverse position is related to buoy colour. Considerable thought was given to the use of buoy colour in messages expressing the transverse position of a ship with respect to a reference line. The IALA buoyage system divides the world into two buoyage area, IALA 'A' (Europe, Africa, Asia [except Japan, Korea, Republic of the Philippines] and Australasia), and IALA 'B' (the Americas, Japan, Korea and Philippines).

Within IALA 'A' green buoys are to starboard on entering harbour, red to port. Within IALA 'B' red buoys are to starboard, green to port.

These buoyage differences have existed for a long time, and are well known to mariners. Further, the time elapsing in moving from one system to the other is usually several days.

With the VTS Centre in control of the message exchange between ship and shore, no confusion has been found to arise. Complete uniformity in the world's buoys does not seem a foreseeable event, and can be discounted.
For a full typology of messages see Appendix 13.

Level 3 messages, in a VTS system, are fully generative, relying on the Seaspeak system as a constructive base.

Because Level 3 messages are, by definition, of less frequent occurrence than either Level 2 or Level 1 messages, it is natural that messages concerning special circumstances should be dealt with in this section.

Within a VTS, predictable special circumstances may include, but are not limited to the following:

(a) Defects on the vessel
(b) Breakdowns
(c) Deviations from the planned route due to (a) or (b) above, or any other cause
(d) Changes of intended movement
(e) Anchoring
(f) Unusual hazards in the system
(g) Normal pilotage service suspended procedure
(h) Reduced visibility
(j) Distress and emergencies
(k) Deep-draught vessels
(l) Hazardous cargoes
(m) Vessels restricted in their ability to manoeuvre
Even though the Seaspeak system is fully capable of coping with the communication problems associated with the above subjects, it is recommended that additional lead words, the purpose of which is to give immediate identification to the individual items concerned, should be inserted at the commencement of the message.

Alan Glover, working in the Seaspeak team, originally made the suggestion that messages concerning breakdowns should be prefixed by the word 'breakdown', deviation messages by 'deviation' etcetera. The full list of these prefixes is:

- Defect
- Breakdown
- Deviation
- Deep Draft

For a full typology of messages see Appendix 13.
CHAPTER 6 VTS Communications Language Trials and Conclusions

This chapter describes the trials that have been carried out of the proposals postulated, in a variety of circumstances appropriate to the complexity of the overall problem. It describes how different levels of trials were employed, and offers conclusions on the findings of the whole study.

6.1 Trials

Materials produced during the whole duration of this research were continuously tested as opportunity arose, as specified in Chapter 4, for Seaspeak, and elsewhere.

During the latter period of the study, which was specifically concerned with communication in inshore waters between ships and VTS, the author devised a formal trials programme to specifically validate the work carried out before producing the final proposals made in this thesis (see Section 6.2).

This validation programme comprised the following stages:

- The production of an initial set of communications procedures, formats and message structures for consideration by the team of experts listed in Appendix 9.
Continuous revision of the above work as trials indicated necessary (10 revisions in all).

'Restricted trials', carried out at the ports of Marseille, France, and Cork, Eire, and involving visiting ships to those ports, as detailed in Section 6.1.1.

'Extended trials' carried out over a six-month period and involving VTS centres and ships as detailed in Section 6.1.2.

'Final trials' carried out on board one ship visiting a large number of European ports, as detailed in 6.1.3.

The complete trials programme was carried out with the full co-operation of every section of the maritime community.

6.1.1 Restricted Trials

These trials were arranged to give a valid sample of user opinion prior to the commencement of more wide-ranging trials of longer duration.

In this way, it was hoped, any major difficulties or misinterpretations could be corrected before the sample became too large. An early edict by Strevens was borne in mind, with just cause:
"... job orientated learners are usually more pragmatic, intolerant of what they feel to be irrelevant, critical of unauthentic materials, keen to achieve effective communication but contemptuous of aesthetic niceties such as elegance of style."

(Strevens 1977 : 130)

During preliminary investigations in these trials it was discovered that ships' personnel were thoroughly accustomed to receiving official correspondence carrying either the full weight of national law, or the imprint of their shipping company. They were not at all accustomed to being consulted, or included in a research programme. Thus the idea of being asked to test material was novel to them, and many took the attitude that materials should arrive for testing in such perfection as to be incapable of improvement. This gave an unexpected extra difficulty in carrying out the programme, and demanded that some modifications be made.

It was originally decided by the author that opinion on the applicability of each unit of the proposals should be tested by some accepted grading method, and the 'Likert Scale' (Likert 1932) was chosen as suitable. This scale gives a simple grading from 'Strong Agree', through 'No Opinion' to 'Strong Disagree'. A preliminary test of the system was carried out, but was found to be a complete failure. Another alternative therefore had to be devised, which had to be capable of interpretation by non-native English-speaking bridge personnel.
Thus, for ships, a simple 'Yes'/ 'No' question sheet was used, each item tested being allocated a single question. Such a format is shown in Appendix 15. Again, preliminary trials showed that this was not satisfactory. If a ship did not use a particular item, then bridge personnel frequently filled the 'does not work' box, because, as they reasoned, how can something work if it is not used? Therefore the question sheet was again revised to include columns 'do you use it - yes/no', as shown in Appendix 16.

Having produced a form of question sheet for ships, a similar sheet was produced for VTS Operators, based on the same principles. A precis was then made of the proposed solutions to the communication problem, the paragraph numbers being those referred to in Appendices 15 and 16.

A first survey was then made of VTS centres which should be asked to participate in the restricted trials.

The criteria used were:

1. Geographical location
2. Suitability of size and type of VTS centre
3. Suitability of size and type of infrastructure, i.e. size of port served or density of traffic in the case of a coastal VTS
4. Suitability of national considerations and governmental attitude
Suitability of perceived co-operation level within the individual VTS centre and its associated controlling organization

For the purpose of the restricted trials, two ports were chosen, using the above criteria.

These were:

Port Autonome de Marseille/Fos, France and Port of Cork, Eire.

Marseille was chosen specifically because of its suitability on all points mentioned above, but especially because, regarding criteria .2, .3, .4 and .5, its score was especially high. Marseille is statistically the second largest port in Europe, and typifies the class known as a 'breakwater port', with a comparatively easy approach. Incidence of fog is low, about 10 days per year, but the VTS is modern, sophisticated and managed on the principle of full integration between personnel from the several interests concerned. This, and an enlightened management, guaranteed full co-operation in the research programme.

Cork, Eire, was also chosen because of its suitability on all points mentioned above, but also because it served as a contrasting study to Marseille. Cork does not have such a large annual throughput of cargo as Marseille, neither does it have a sophisticated VTS system. The harbour, one of Europe's largest and best protected anchorages, is entirely controlled visually and by VHF radio.
Thus Marseille and Cork were very different test cases, but for the proposals of the research to be held valid, it was necessary to prove that they would work satisfactorily in both places.

**Marseille**

Trials were carried out over the period from 10th January 1985 to 5th March 1985, using the two VTS centres at Fos (main centre) and Marseille.

Ship communications were logged, and success or otherwise with individual items was recorded, a sample log being shown in Appendix 16.

Within the restricted trials period, 686 ships were communicated with, using the suggested communications format. An analysis of the success of some items tested is included in Appendix 17. Subsequent to the expiry of the time allowed for the trials, 389 further ships were communicated with at Marseille, with similar results.

Because these were preliminary trials of new material used by personnel who had not been specifically trained in its use, the results were somewhat variable. Subsequent inspection showed that the items with low success rates were associated with items planned for use in Radar Assistance to Navigation, in fog. There was no fog in
Marseille during the trials period, and therefore there may have been inconsistencies in logging in this preliminary trial.

The very high success rates of the more commonly used items, however, gave reason to suppose that there was justification to proceed with the main thrust of the research.

Whilst it was relatively easy to communicate with the VTS Centres at Marseille and Fos, it was also essential to communicate with the ships using the port complex. Because communication is a two-way exercise, it was essential that bridge personnel should be provided with the same reference material as that provided for the VTS operators. Thus five copies of an abridged typology of messages were distributed to the 175 shipping companies regularly using the Port Autonome.

In normal VHF communication exchanges the Controlling Station is the shore station. According to the Seaspeak Reference Manual the Controlling Station (CS) has the following functions:

- The CS is responsible for making and maintaining contact
- The CS is either:
  (a) The station that makes the initial call, or
  (b) A Coast or Shore Radio Station as soon as it becomes involved in an exchange or broadcast

(Weeks et al. 1984: 11)
This prime function of the VTS (Shore Radio Station) in the exchange extends further than even its Controlling Station role suggests. On the ship's bridge it is a navigator who is carrying out the communication function, and accurate logging of conversations may not be an easily performed task, or one which can be given priority.

Thus, during the restricted trials, returns from ships were low by comparison with the Marseille VTS. Less than 50 ship logs were received. A sample is shown in Appendix 18.

Although the sample returned was small, it was again considered that sufficient success had been achieved to justify proceeding to the next stage of the trials, after careful amendment to the suggested communications proposals.

Cork

As stated, the Port of Cork did not have radar equipment fitted in its VTS system at the time that the restricted trials were carried out, during February 1985. Therefore, the Port considered that a set of communications proposals which included frequent reference to radar techniques would be confusing to the ships using the port.

The method employed was therefore somewhat different from that used at Marseille.
First, a new set of communications proposals, adapted for use at Cork by the Port, was circulated to ships making regular calls. The proposals were then tested on the next visit made by individual ships, making careful use of lists of distribution of material. An extract from the distributed material is shown in Appendix 19.

Although the time allocated for the trial, and the number of ships involved was small compared to Marseille, the results were good, and are shown as received in Appendix 20.

The results of the Restricted Trials having been judged satisfactory, it was decided to proceed to the Extended Trials.

6.1.2 Extended Trials

These trials were designed to give a more lengthy test of the communications proposals, modified as a result of the experience gained during the period of the restricted trials.

Trials were planned to involve VTS centres of every type, and the ships using them.

VTS centres chosen, with the co-operation of their controlling authorities under two main headings were as follows:
<table>
<thead>
<tr>
<th>Port</th>
<th>Coastal (including landfall)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genova</td>
<td>CROSS-Corsen (Ushant)</td>
</tr>
<tr>
<td>Marseille</td>
<td>CROSS-Gris Nez</td>
</tr>
<tr>
<td>Le Havre</td>
<td>Oostend</td>
</tr>
<tr>
<td>Antwerpen</td>
<td>CNIS Dover</td>
</tr>
<tr>
<td>Southampton</td>
<td>Wandelaar (Pilot Vessel)</td>
</tr>
<tr>
<td>Bremerhaven</td>
<td>Wilhelmshaven</td>
</tr>
<tr>
<td>Hamburg</td>
<td></td>
</tr>
<tr>
<td>Rotterdam</td>
<td></td>
</tr>
<tr>
<td>Bremen</td>
<td></td>
</tr>
<tr>
<td>Cuxhaven</td>
<td></td>
</tr>
<tr>
<td>Cork</td>
<td></td>
</tr>
</tbody>
</table>

Because of inherent political considerations, it was thought prudent only to approach the owners of European flag ships. Although the most conclusive linguistic evidence could undoubtedly have been gleaned from Pacific Basin owned tonnage, the problems involved in obtaining the voluntary services of ship's Masters sailing on ships registered outside Europe were found to be too great, and, after a preliminary investigation, the idea was dropped.

Eventually, ten European shipping companies agreed to allow their ships to participate, giving a total of 101 ships for the trial. See Appendix 21.
Having received agreement to participate in the extended trials from the above-mentioned ships and VTS Centres, the following trial materials were circulated to all participants:

- Full details of the proposed communications to both VTS Centres and ships
- Log for use of operators supplied to VTS Centres
- Suggested method of operation supplied to ships
- Log supplied to all ships (similar to that in Appendix 16)
- 'Typical Voyage', supplied to all ships after early request. See Appendix 22 for extract.

All participating VTS Centres were appraised of the results of the restricted trials prior to the commencement of the extended trials on 1st April 1985, and, subsequently, each VTS Centre was visited by the author to ascertain progress and assist with any difficulties.

Several VTS Centres produced internal directives which served to amplify the documents supplied by the author, and which gave very clear advice to personnel, to be applied during the duration of the trials, which terminated at the end of August 1985. Two examples of these directives are given at Appendix 23 (CROSS Gris Nez) and Appendix 24 (Dover Coastguard).
The extended trials were held with the express purpose of verifying that the alterations made subsequent to the restricted trials were basically correct, and that the communications proposals developed could be put forward towards a final suggestion for approval.

The results obtained varied from VTS to VTS, and from ship to ship, because of the size of the sample. At Genova, for example, 192 separate logs were completed, representing 1344 ship entries into the port, every one of which was used to test the proposals.

Other VTS Centres were only able to test the proposals at intervals, and submitted one log showing the grossed-up figure of contacts with ships. One such log is shown at Appendix 25, from Wandelaar Pilot station.

No major difficulties with the suggested proposals were reported by the VTS Centres involved, the general format in use being that typified by the messages shown in Appendix 13.

All of the linguistic, procedural and practical proposals proposed worked within the expected limits, with the one exception detailed below:

Although English is the IMO-accepted official language of the sea, and is frequently referred to in the International
Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW 1978), strong objections were again encountered to using English in all circumstances in inshore waters.

This was found to be especially true when a pilot was on board, and was receiving information and advice from another pilot or operator at the shore radar in the VTS Centre. In each North West European country tested, the language used was the local language. This ensured that the pilot on board was fully informed, yet the ship's Master was not, and neither was the surrounding traffic. As mentioned in Section 4.2.3.1, the Master still remains responsible for the safe conduct of his ship when a Pilot is on board, the sole exception being the Panama Canal. Therefore a practical result of an apparently obscure language problem could be that a Master could be liable for the consequences of a communication error to which he was not a party.

During a voyage from Wandelaar to Antwerp the author was on board a Panamanian ship, with a Filipino crew and a German Master. The pilot was Flemish speaking, and was communicating with the shore in that language. The Master refused to proceed unless every message was translated into English. He was acutely aware of his responsibility and liability.
There seems little immediate chance of solving this problem until international legislation is introduced. See Section 6.2.

The extended trials for ships were held concurrently with those for VTS Centres, the idea being that each participant would have several weeks in which to become used to the system, although formal training would not be possible in either case. However, whilst the VTS centres could be contacted directly, and preliminary visits made to ensure that major difficulties did not occur, no such technique could be employed with ships.

The circulation of material and explanations to ships depended to a large extent on items outside the control of the author, resulting in lengthy delays in delivery and, frequently, non-arrival of information, without which the ship in question was unable to participate.

Furthermore, the practice of not logging VHF calls, first exhibited during the restricted trials, was repeated during the extended trials. Only 27 exchanges were fully logged by ships, in comparison with 1344 exchanges logged by Genova VTS alone.

The low number of logs was amply balanced by long and detailed letters of reports from nine shipmasters from five European countries, giving precise details of the advantages and failures of the communication proposals, and
offering advice on future developments. Actual messages sent are shown at Examples 2, 3 and 4 in Appendix 13, 'Typology of Messages'. These messages worked without difficulty.

Throughout this study it has been emphasised that the communication process involves far more than merely passing messages. Every successful exchange involves procedures, language and to some extent psychology. If any of these considerations is ignored, then the success of the exchange is in doubt, even if equipment performance is perfect.

During the extended trials it was found that VTS centres, sometimes less than 50 miles apart, were frequently asking for exactly the same information from ships, even though the centres were in the same country. This custom was found to cause annoyance amongst ship's staff who, in many cases, refused to answer calls from VTS centres thereafter. Various reasons were given for this refusal, the most common being 'pressure of navigational duties', but the true reason may have been a natural unwillingness to repeat a task already efficiently carried out. This fact was referred to COST 301 of the EEC, where a separate Task Group was set up to study the matter. The author's report to COST 301 reads as follows:
"Responses from ships indicated that some VTS Centres are requesting items from the long-range report from ships even though these items have been reported earlier at an adjacent Centre or radio station along the coast. This resulted in an increase in workload on the bridge for navigating watchkeeping officers by duplicating transmissions. All VTS Centres should be capable of exchanging operational information with adjacent stations."

(COST 301, 1986 : 33/34)

During earlier Chapters, it has been argued that the proposals considered in this study should be capable of transmission by every means at the disposal of present ships, or contemplated in the near future. Thus TELEX (via Satellite) and VDU based systems should be considered as well as the more common VHF radio. That the proposals were suitable for TELEX was confirmed positively by the 'CMB Europe', Captain J. Vingerhoets, by sending messages listed in Appendix 13 (Examples 2, 3 and 4) to Dover CNIS, by Telex.

6.1.3 Final Trials

These were carried out by the author on board the German container ship 'Sierra Express', owned by Hapag-Lloyd AG, operating under the Federal German flag, and manned by German officers with a mixed German-Spanish crew.

'Sierra Express' is a fully geared container ship of 1500 TEU, length 203m, beam 31m and speed 21kts. She is engaged on the Hapag-Lloyd container liner trade to Central America, her European ports of call being located in France, Belgium, Netherlands, the German Federal Republic and Britain.
These final trials were carried out between 26th August and
3rd September 1985, their purpose being to verify all
possible information received, to check message structures
currently in use, to check the efficacy and efficiency of
communications systems in use, and to use, where possible,
the proposed communications formats outlined in this study.

Ports of call were: Felixstow, Ijmuiden, Amsterdam,
Hamburg, Bremerhaven, Zeebrugge, Le Havre and Liverpool.

The information sent to the ship arrived on board at the
same time as the author, and therefore had not been seen.
A 'clean sheet' approach was used, the suggestion of trying
new message formats being readily accepted.

As with every vessel, 'Sierra Express' sends a message
ahead, usually addressed to the ships' Agent, to inform of
Estimated Time of Arrival (ETA), pilotage requirements,
present draft, cargo particulars and ships' requirements.
This is normally sent by telegraphy, or, on the 'Sierra
Express' by radio telex. Voice transmission by VHF cannot
be used, because of range limitations, since the notice
required is usually 12 hours or more. Confirmation
messages are sent by VHF when nearing the destination port,
these two stages corresponding to the Long-Range Report and
At the time of arrival on board, this message was unstructured, and constructed as a normal TELEX. The 'Alpha-Bravo' system, (shown in Appendix 13) was adopted at once, and was used successfully at each port, and on passing each VTS, where the centre concerned had had some advance notification that the system may be used.

The method employed was simple:

(a) to obtain the ship's original data
(b) to code up into 'Alpha-Bravo' system and send.

Shown below is the record of the actual transmission made to German Bight VTS Centre, Wilhelmshaven, showing ship's data, code up on board, and message received at Wilhelmshaven.
<table>
<thead>
<tr>
<th>Ankunft</th>
<th>Datum 27.07.1 15:12</th>
<th>Tlg. V 1,30 m, H 7,86 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abfahrt</td>
<td>Datum 28.07.1 11:30</td>
<td>Tlg. V 7,58 m, H 8,08 m</td>
</tr>
<tr>
<td>Ladungsarb. Anfang</td>
<td>Datum 27.07.1 16:30</td>
<td>Ballastwasser ab 3210</td>
</tr>
<tr>
<td>Ladungsarb. Ende</td>
<td>Datum 28.07.1 11:40</td>
<td>Frischwasser ab 195</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ladung</th>
<th>20'</th>
<th>40'</th>
<th>Gesamt</th>
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<tr>
<td>voll</td>
<td>leer</td>
<td>voll</td>
<td>leer</td>
</tr>
<tr>
<td>Ankunft</td>
<td>149</td>
<td>166</td>
<td>71</td>
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<tr>
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<td>53</td>
<td>42</td>
<td>74</td>
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<td>136</td>
<td>2</td>
<td>107</td>
</tr>
<tr>
<td>Abfahrt</td>
<td>232</td>
<td>18</td>
<td>124</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WARTEZEITEN (Std./Min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lotse bei Ankunft</td>
</tr>
<tr>
<td>Lotse bei Abfahrt</td>
</tr>
<tr>
<td>Behördenabfert. an</td>
</tr>
<tr>
<td>Behördenabfert. ab</td>
</tr>
<tr>
<td>Verholen</td>
</tr>
<tr>
<td>Wetter</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Gesamt</td>
</tr>
</tbody>
</table>

| Arbeiter | 27,9 |
| Schiffsbrücke | 1925 |

<table>
<thead>
<tr>
<th>IMCO (Kilos)</th>
<th>Ankunft</th>
<th>gelöst</th>
<th>geladen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Klasse</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>62,107</td>
<td>16,249</td>
<td>26,154</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>222</td>
<td>222</td>
</tr>
<tr>
<td>5</td>
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<td>3,019</td>
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<td></td>
<td>3,46</td>
<td>3,46</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>18,000</td>
<td>18,000</td>
</tr>
<tr>
<td>9</td>
<td></td>
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</tr>
<tr>
<td>Gesamt</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Leistung net</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leistung gross</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schiffsbrücke</td>
<td>1925</td>
<td></td>
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</tr>
<tr>
<td>Arbeiter</td>
<td>27,9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
LONG RANGE REPORT

A. alpno SIERRA EXPRESS DELTA NOVEMBER CHARLIE ECHO

B. bravo 28 22 00 LOCAL

C. charlie (lat-lon) 52° 03 N 06 37 E

D. delta Nil

E. echo (course) 076

F. foxtrot (speed) 21 45

G. golf AMSTERDAM

H. hotel Nil

I. india ETA ELSE ONE 29 01 00 LOCAL FOR HAMBURG

J. juliet PILOT REQUIRED

K. kilo Nil

L. lima PILOTAGE

M. mike VHF 16

N. november PILOTAGE

O. oscar 8 decimal zero eight metres

P. papa IMDA (ATTACHED LIST)

Q. victor REMAINDER NIL

W. whiskey X-RAY

X. x-ray
<table>
<thead>
<tr>
<th>CODE</th>
<th>SPoken As</th>
<th>INFORMATION REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long Range Report</td>
<td>(Title of Report)</td>
<td>Sierra Express</td>
</tr>
<tr>
<td>A</td>
<td>alpha</td>
<td>Ship: name and call sign or ship station identity.</td>
</tr>
<tr>
<td>B</td>
<td>bravo</td>
<td>Date and time of event: A six digit group giving date of month (first two digits), hours and minutes (last four digits) if other than UTC state time zone used.</td>
</tr>
<tr>
<td>C</td>
<td>charlie</td>
<td>Position: A four digit group giving latitude in degrees and minutes suffixed with N (North) or S (South) and a five digit group giving longitude in degrees and minutes suffixed with E (East) or W (West);</td>
</tr>
<tr>
<td>or</td>
<td>or</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>delta</td>
<td>Position: A true bearing from (first 3 digits) a clearly defined landmark and a distance in nautical miles.</td>
</tr>
<tr>
<td>E</td>
<td>echo</td>
<td>True Course: A three digit group</td>
</tr>
<tr>
<td>F</td>
<td>foxtrot</td>
<td>Speed in knots and tenths of knot: A three digit group.</td>
</tr>
<tr>
<td>G</td>
<td>golf</td>
<td>Port of departure: Name of last port of call.</td>
</tr>
<tr>
<td>H</td>
<td>hotel</td>
<td>Date time and point of entry into system: Entry time as expressed in (B) and entry position expressed as in (C) or (D).</td>
</tr>
<tr>
<td>I</td>
<td>india</td>
<td>Destination and expected time of arrival at defined ETA point: Name of port and date time group expressed as in (B).</td>
</tr>
<tr>
<td>J</td>
<td>juliet</td>
<td>Pilot: State pilot requirements at VTS destination or state whether a deep sea or local pilot is already on board.</td>
</tr>
<tr>
<td>K</td>
<td>kilo</td>
<td>Date, time and point of exit from system: Exit time expressed as in (B) and exit position expressed as in (C) or (D).</td>
</tr>
<tr>
<td>L</td>
<td>lima</td>
<td>Route information: Intended track.</td>
</tr>
<tr>
<td>M</td>
<td>mike</td>
<td>Radio communications: State in full names of stations/frequencies guarded.</td>
</tr>
<tr>
<td>----</td>
<td>------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>N</td>
<td>november</td>
<td>Time of next report: Date time group expressed as in (B).</td>
</tr>
<tr>
<td>O</td>
<td>oscar</td>
<td>Maximum present static draught in metres: Four digit group giving metres and decimals of metre</td>
</tr>
<tr>
<td>P</td>
<td>papa</td>
<td>Cargo/Ballast (see Ballast) Cargo and brief details of any dangerous cargoes including harmful substances and gases that could endanger persons or the environment 1. approximate type, eg. oil, gas, chemical. 2. quantity in tonnes. 3. type according to IMDG code.</td>
</tr>
<tr>
<td>V</td>
<td>victor</td>
<td>Medical personnel: Doctor, physical assistant, nurse.</td>
</tr>
<tr>
<td>W</td>
<td>whiskey</td>
<td>Total number of persons on board: number.</td>
</tr>
<tr>
<td>X</td>
<td>x-ray</td>
<td>Miscellaneous: Any brief information give brief details.</td>
</tr>
</tbody>
</table>
Movement reports, as exemplified in Appendix 13, were sent to all VTS Centres en route, either by regulation or voluntarily by ship's personnel on 'Sierra Express'. These worked well on every occasion. VHF was used exclusively, the time occupied for the message below being 30 seconds, with no queries or repeats.

Movement Report

Alpha    Sierra Express Delta November Charlie Echo
Bravo     01 00 20 UTC
Delta    Bearing 094 degrees from Dover East Breakwater
distance 7 miles
Echo     230 degrees
Foxtrot  11 knots
Over

The receipt of this message was confirmed by Dover CNIS, both by VHF and later by letter.

The use of 'Radar Assistance' messages was observed in one port only, in dense fog. The VTS centre concerned used local language exclusively to issue continuous position of traffic messages which were of high value to the pilot embarked. The ship, at the time, was in waters where there were 'ships of many nationalities' (IMO A578/14 1985), and therefore all non-piloted ships were excluded from the information flow, at a time when maximum information was
required. This observation confirmed the belief that more thought should be given to this aspect of communications, as detailed in Chapter 5. Further, reference to ships' positions was made in a way that would not be effective in other areas, where the direction of the fairway was different. This difficulty has been considered, and proposals have been made, in Chapter 5.

'Status words', or message markers, were used where possible, by the author, and appeared to work well. Because there was no method of formally checking results ashore for this particular item, reference is made to Appendix 8, detailing the results of a more exhaustive study.

Clearance messages, as proposed in Chapter 5, can only be initiated by a VTS centre and therefore could not be instigated by 'Sierra Express'. Only one VTS Centre, Zeebrugge, was operating a formal clearance system.

"The present VTS gives or refuses clearance to enter or leave the harbour. The VTS has full authority to deny entry to a ship when, for example, another ship or ferry is about to leave the entrance. Pilots also always seek clearance before leaving a berth, and this clearance will only be granted if the entrance is clear and the swinging basin is also clear."

(Weeks et al. 1986 : 45)

However, several incidents were observed during the short voyage of ships which sought clearance from other VTS centres before leaving their berth. In one case, a self-piloted British ferry construed the information that
the 'Sierra Express' would pass her berth in five minutes as a denial of clearance to sail. Such incidents re-inforced my conviction that a system of clearance is necessary, resulting in the detailed proposals in Chapter 5.

The trials on 'Sierra Express' showed that the communications upon which successful ship operations depend are not as reliable as they should be, neither are the routes designated for messages at all clear. Although outside the scope of this study it is interesting to note that one arrival Telex was mislaid, and first report received was by VHF. Two Telexes did not arrive at all, even though their answer-back was correct, and one had to be routed through two different stations.

The Final Trial showed, in the opinion of the author, that there is great room for improvement in message structure, in procedures and in the infrastructure of communications technology. This study offers some proposals on the two former items, but not on the latter.

6.2 Conclusions

1. The need for uniformity and logic in VTS communication systems was crystallized by a sequence of events and research efforts culminating in this study.
2. The shift away from ships' manning by the North-West European nations towards the developing nations has resulted in a rapid and accelerating educational crisis in Maritime English. Every effort must be made to use every device of language and procedures so that safety and operational efficiency may be improved. This may demand an even more pragmatic approach than has been attempted in the past, perhaps by removing the last traces of classical English education from maritime syllabi.

3. In international waters many IMO-approved Traffic Separation Schemes exist which are in close proximity to the national waters of coastal states. The surveillance of such schemes by the coastal states is becoming ever more intense as the realisation of increasing pollution threats develops. This increase in surveillance increases the pressure on communications between VTS and ships.

4. In national waters, the control exercised by coastal states is increasing, for the reasons given above. Status of communication is therefore a consideration of growing importance.

5. The most heavily automated and sophisticated ports, upon which tonnage is tending to concentrate, have a rapidly increasing need for traffic management, to enhance the smooth operation of the port. This demands a precise and easily understood communication system.
6. It is submitted that the proposals made in this study will enhance the possibility of a solution to the demands on language and communication detailed above. The final outcome will depend on international legislation.
6.3 Post-Study Development

In 1986 IALA re-convened its Technical Committee on Vessel Traffic Services, a body set up with the express purpose of advising IMO on all aspects of VTS, and the originator of the Guidelines for VTS (IMO A578/14 1985).

This committee has amongst its members:

- The International Association of Ports and Harbours
- The International Chamber of Shipping
- The International Maritime Pilots Association
- The International Federation of Ship Masters Association
- The European Maritime Pilots Association
- The Governments of the United States of America
  - Canada
  - Denmark
  - France
  - the Federal Republic of Germany
  - Norway
- Trinity House, and
- the author.

This committee has on its agenda the several recommendations made in the course of this research, and active steps are being taken to submit the committee's findings on VTS communications to IMO for its consideration in the near future.
APPENDIX 1

GUIDELINES FOR VTS

IMC

RESOLUTION A.578(14)
adopted on 20 November 1985

GUIDELINES FOR VESSEL TRAFFIC SERVICES

PREAMBLE

1. These Guidelines describe operational procedures and planning for vessel traffic services (VTS). The Guidelines do not address liability or responsibility - which should be considered by the authority establishing a VTS - nor do they create new rights to enact legislation which impose requirements on shipping.

2. VTS authorities are urged to ensure that vessel traffic services within territorial seas are operated in accordance with national law and do not prejudice the right of innocent passage through such waters and to ensure that vessels outside territorial seas are able to use, on a voluntary basis, the service provided.

3. No provision of these Guidelines shall be construed as prejudicing obligations or rights of vessels established in other international instruments.

4. VTS authorities or those planning VTS are recommended to follow these Guidelines, as appropriate to their needs, in the interests of international harmonization and improving maritime safety.

5. These Guidelines describe the possible functions of VTS and provide guidance for designing and operating VTS once it has been decided that such a system, whether simple or highly sophisticated, is necessary. They further aim at international harmonization and address the procedures used by VTS taking into account current practice. They are based on relevant recommendations and resolutions adopted by the Organization, in particular Assembly resolution A.531(13) entitled "General Principles for Ship Reporting Systems".
These Guidelines contain the following chapters and sections:

Chapter 1 - Objectives and procedures

Section 1 Vessel traffic services
Section 2 VTS authority
Section 3 Elements of a VTS
Section 4 Functions of a VTS
Section 5 Procedures
Section 6 Personnel
Section 7 VTS publication for users

Chapter 2 Planning a VTS
CHAPTER 1 - OBJECTIVES AND PROCEDURES

1 Vessel traffic services

A VTS is any service implemented by a competent authority, designed to improve safety and efficiency of traffic and the protection of the environment. It may range from the provision of simple information messages to extensive management of traffic within a port or waterway.

1.1 The reasons for establishing a VTS may include:
- assistance to navigation in appropriate areas;
- organization of vessel movements to facilitate an efficient traffic flow in the VTS area;
- handling of data relating to ships involved;
- participation in action in case of accident;
- support of allied activities.

1.2 A VTS is particularly appropriate in the approaches to a port, in its access channels and in areas having one or more of the following characteristics:
- high traffic density;
- traffic carrying noxious or dangerous cargoes;
- navigational difficulties;
- narrow channels;
- environmental sensitivity.

2 VTS authority

2.1 "VTS authority" is the authority operating a VTS. It may include a governmental maritime administration, a single port authority, a pilotage organization or any combination of them.

2.1.1 The authority establishing a VTS should delineate its area of coverage, declare it a VTS area and disseminate to mariners full details concerning the area of operation, including the limits of the areas where participation of vessels is required or recommended, the services provided and the procedures
to be followed (see section 5). It should also state the classes of ship which are required or recommended to participate and indicate the VTS centres responsible for the VTS tasks.

2.1.2 The authority should establish appropriate qualifications and training requirements for VTS operators in accordance with section 6.

2.1.3 The VTS authority should ensure that the effects of vessel traffic services, routeing, aids to navigation, pilotage, etc. are fully integrated.

2.1.4 The VTS authority should in general limit the functions of a VTS operating outside port areas and their approach channels to those of providing an information service and navigational assistance service to vessels for the purposes of safety of navigation or the protection of the environment.

2.1.5 Care should be taken that VTS operations do not encroach upon the master's responsibility for the safe navigation of his vessel, or disturb the traditional relationship between master and pilot.

2.1.6 When planning or designing a VTS, the authority should take into account the factors and criteria of chapter 2.

3 Elements of a VTS

3.1 General

A VTS consists of the following elements:

- VTS organization;
- vessels using VTS;
- communications.

3.2 VTS organization

3.2.1 The VTS organization should be equipped with communications facilities and, where appropriate to the tasks performed by the VTS, have surveillance radar and other equipment. The VTS organization should be equipped to use the appropriate frequencies, as prescribed in appendix 18 of the Radio Regulations, including the international distress, safety and calling frequencies.
3.2.2 "VTS centres" are centres from which VTS are operated.

3.2.3 "VTS operators" are the appropriately qualified persons who perform the functions of the VTS (see section 4).

3.3 Vessels using a VTS

3.3.1 1974 SOLAS Convention vessels participating in a VTS will be fitted with navigational and communications equipment in accordance with chapters IV and V of that Convention, as amended.

3.3.2 The decisions concerning the actual navigation and manoeuvring of the vessel remain with the master. Neither the sailing plan (see paragraph 5.3.1) nor requested or instructed changes to the sailing plan can supersede the decisions of the master concerning the actual navigation and manoeuvring of the vessel, if such decisions are required according to his judgement by the ordinary practice of seamen or by the special circumstances of the case.

3.3.3 If voluntary or compulsory pilotage exists in the VTS area, pilotage plays an important role in such a VTS. The function of a pilot is to provide the master with:

- assistance in manoeuvring his vessel;
- local knowledge both concerning navigation and national and local regulations; and
- assistance with ship-to-shore communications, particularly where there are language difficulties.

3.4 Communications

3.4.1 Communications between the VTS centre and the ship should be established and follow the appropriate communication procedures of the Radio Regulations. These communications generally involve VHF radio links which can be duplicated or complemented, for example with traffic signals. The number of appropriate channels required should be kept to a minimum but will depend upon the density of radio traffic.

3.4.2 The language used should enable the VTS authority and the ship to understand each other clearly.
3.4.3 In local areas the primary language may be the working language of the country where the system is established, but English should be used where language difficulties exist, in particular where requested by the master or VTS operator. For services established in areas where there are ships of many nationalities, English may be designated as the working language.

3.4.4 The IMO Standard Marine Navigational Vocabulary should be used where possible.

4 Functions of a VTS

4.1 General

The functions of a VTS may include:
- data collection;
- data evaluation;
- information service;
- navigational assistance service;
- traffic organization service;
- support of allied activities.

4.2 Data collection

Data collection may include:
- gathering data on the fairway and traffic situation by appropriate equipment, e.g. hydrological and meteorological sensors, radar, VHF direction finder, etc.;
- maintaining a listening watch on the designated maritime safety and distress frequencies;
- receiving ships' reports;
- obtaining reports on ships' conditions with regard to hull, machinery, equipment or Manning and where relevant on hazardous or noxious cargo carried.
4.3 Data evaluation

Data evaluation may include:
- monitoring the manoeuvres of ships for compliance with international, national and local requirements and regulations;
- interpreting the total traffic situation and its developments;
- monitoring the fairway situation (hydrological and meteorological data, aids to navigation);
- co-ordinating the information flow and distributing relevant messages to the participants or organizations concerned;
- collating information for statistical purposes.

4.4 Information service

An information service is a service provided by broadcasting information at fixed times, or at any other time if deemed necessary by the VTS centre, or at the request of a vessel and may include:
- broadcasting information about the movement of traffic, visibility conditions or the intentions of other vessels, in order to assist all vessels, including small craft that are participating in the VTS only by keeping a listening watch;
- exchanging information with vessels on all relevant safety matters (notices to mariners, status of aids to navigation, meteorological and hydrological information, etc.);
- exchanging information with vessels on relevant traffic conditions and situations (movements and intentions of approaching traffic or traffic being overtaken);
- warning vessels about hindrances to navigation such as hampered vessels, concentrations of fishing vessels, small craft, other vessels engaged in special operations, and giving information on alternative routeing.

4.5 Navigational assistance service

A navigational assistance service is a service given at the request of a vessel or, if deemed necessary, by the VTS centre, and may include assistance to vessels in difficult navigational or meteorological circumstances or in case of defects or deficiencies.
4.6 Traffic organization service

This is concerned with the forward planning of movements in order to prevent the development of dangerous situations and to provide for the safe and efficient movement of traffic within the VTS area, which may be accomplished on the basis of sailing plans. This service may include:

- establishing and operating a system of traffic clearance and reports for specific movements and conditions, or establishing the order of movement;
- scheduling vessel movements through special areas such as those in which one-way traffic is established;
- establishing routes to be followed and speed limits to be observed;
- designing a place to anchor;
- organizing vessel movements by means of advice or instructions, such as requiring a vessel to remain in or proceed to a safe position or another appropriate measure, whenever the safety of life or protection of the environment or of property warrants it.

4.7 Support of allied activities

Support of allied activities may include:

- co-ordinating the information flow and distributing the relevant messages to the participants or organizations concerned;
- supporting activities allied to those of the VTS authority such as pilotage services, port services, maritime safety, pollution prevention and control and search and rescue;
- calling upon and requesting action by rescue and emergency services and, if appropriate, participating in the actions of these services.

5 Procedures

5.1 General

5.1.1 Every VTS authority should establish and apply procedures based on these Guidelines to the extent required by its functions and needs.

5.1.2 Every vessel participating in a VTS on a voluntary or compulsory basis should as far as possible follow the procedures applicable to that VTS.
5.1.3 Reporting procedures should be clear and simple and should contain only essential information so as to avoid imposing an undue burden on masters, officers of the watch and pilots.

5.1.4 When detailed and extensive information has to be exchanged with one ship which is not relevant to other ships, the VTS operator may decide to communicate with that ship on an alternative VHF channel.

5.1.5 To avoid an unnecessary repetition of information by the ship, basic information should be reported once, be retained in the system and be supplemented or updated according to requirements and should be made available to shore services as appropriate.

5.1.6 All ships participating in a VTS should, unless otherwise permitted by the VTS authority, maintain a continuous listening watch on the appropriate frequency of the VTS. This listening watch should be kept at the position from which the ship is navigated.

5.1.7 Status of the message

Any VTS message directed to a vessel should make it clear whether it contains information, advice or instruction.

5.1.8 Information broadcast by VTS

The times of regular broadcasts of VTS bulletins should be clearly published in relevant nautical publications and should take account of the transmission times of neighbouring VTS centres. They should be drawn up in a standard format and should only contain essential information (see section 7). Bulletins broadcast in special circumstances should be prefaced by an appropriate announcement. Information can also be requested by a vessel.

5.2 Initial contact - identification

5.2.1 Generally, the ship contacts the VTS centre by VHF and this is the first direct link between the ship and the VTS. This initial exchange of data enables the ship to provide certain preliminary information, where appropriate (see paragraph 5.2.2.). It also enables the ship to request certain specific
data from the VTS operator. In most cases a ship will identify itself in its dialogue with the VTS operator. This identification may be assisted by technical means such as shore-based radar or VHF direction finder.

5.2.2 A vessel's arrival in a port area is normally anticipated, as the agent will have given an estimated time of arrival (ETA) and requested a berth or anchorage. In the case of vessels carrying dangerous substances, MSC/Circ.299 (December 1980) on "Safe transport, handling and storage of dangerous substances in port areas", which recommends notification of specific information, should be followed as well as any local rules that may be applicable.

5.3 Reporting within a VTS

Ships participating in a VTS should report, if required, at the designated positions and times in accordance with the agreed reporting format. As far as practicable, the master should ensure correct and timely reporting. Vessels not required to report but wishing to avail themselves of the services offered by the VTS should follow the relevant procedures. The types of report and the format described in the General Principles for Ship Reporting Systems* should be used where necessary within the VTS procedures. Not all types of report described below are relevant to every VTS. VTS authorities should ensure that the number of reports vessels have to produce is limited to the minimum compatible with the tasks to be performed by the VTS.

5.3.1 Sailing plan

5.3.1.1 A sailing plan normally consists of the estimated time of arrival in the VTS area or departure from a berth or anchorage in the VTS area. The VTS authority should specify the additional information required in the sailing plan for all ships or for special ships according to local circumstances. In exceptional circumstances the sailing plan may be amplified at the request of the VTS centre.

* Assembly resolution A.531(13).
5.3.1.2 The VTS centre may advise changes to the sailing plan to take account of the traffic situation or special circumstances.

5.3.1.3 After the sailing plan is agreed between the vessel and the VTS centre the vessel is permitted to participate in the VTS and should, as far as practicable, try to maintain the plan.

5.3.1.4 If special circumstances or the safety of traffic so require, the VTS centre may request the vessel to follow a changed sailing plan, indicating the reasons for its request. Such changes should be limited, as far as practicable, and may include:

- time of passing the next reporting point or another specific point;
- extra position reports;
- a new destination;
- remaining at a specified location;
- request not to enter the VTS area;
- request to stay alongside the berth; and
- request to follow a certain route.

5.3.1.5 When special circumstances or the safety of traffic so require and when the VTS operator has the authority, a vessel may be instructed to maintain a specific sailing plan or implement changes to the sailing plan in accordance with paragraphs 5.3.1.4 and 3.3.2.

5.3.1.6 If a vessel does not carry out the action indicated in paragraph 5.3.1.4 or 5.3.1.5 the reasons should be reported to the VTS centre.

5.3.2 Other reports

5.3.2.1 When there is no automatic tracking after reception of the sailing plan and identification of the ship, position reports are necessary to update the movement data of a ship. Ships may be required to send position reports at prescribed positions.

5.3.2.2 If the sailing plan cannot be maintained the vessel should send a deviation report to the VTS centre and an amended sailing plan should be agreed between the vessel and the VTS centre.
5.3.2.3 The vessel should send a final report when leaving the VTS area or arriving at its berth or anchorage in the VTS area.

5.3.2.4 Any other report prescribed by the VTS authority should be made in accordance with the reporting principles adopted by the Organization. For example, a "deficiency report" is a report which should be made to inform the VTS centre of defects, damage, deficiencies or other limitations.

5.4 Assistance to navigation

When a vessel requests navigational assistance or when such assistance is deemed necessary by a VTS centre, the VTS operator should ensure positive identification and location of the vessel by reliable means and obtain other relevant information. After the identification and location are established, the messages on navigational assistance should be sent at short intervals. When the vessel needs no further navigational assistance, clear notice should be given to the VTS centre. In open waters navigational assistance will mainly consist of a description of surrounding traffic, warnings with respect to collision and grounding risks and, if necessary, advice on course. In confined waters navigational assistance will usually also include position data (e.g. distance to a "reference line" or to a "way point").

5.5 Traffic rules

In certain places traffic rules exist. Such rules may cover the movement of special ships, limitations in a channel or passing or overtaking situations. Where such rules exist, and where the VTS operator has the authority, the VTS operator may need to issue instructions to ensure that traffic complies with these traffic rules as appropriate.

6 Personnel

The VTS authority should ensure that VTS operators have the qualifications and have received specialized training appropriate to their tasks within the VTS and meet the language requirements mentioned in paragraph 3.4, in particular with regard to VTS operators authorized to issue traffic instructions or to give navigational assistance.
7 VTS publication for users

7.1 A VTS authority should ensure that the local traffic movement rules and regulations in force, the services offered and the area concerned are promulgated appropriately.

7.2 The publication should be convenient for use by mariners and should, where possible, include chartlets showing the area and sector boundaries, general navigational information about the area together with procedures, radio frequencies or channels, reporting lines and reporting points. Where the VTS operates beyond the territorial sea, the limit of the territorial sea should be clearly indicated on the chartlets.
CHAPTER 2 - PLANNING A VTS

1. The safety of maritime traffic in a VTS area is necessarily a co-operative activity between those ashore and those at sea. It is therefore important, whenever a VTS is being planned and designed, that, amongst others, the mariner's views on the need for and operation of the service are taken into account. The level of need should also be considered. This will assist in the effective implementation of VTS and facilitate the co-operation of all the future participants and promote confidence in the procedures to be followed.

2. When considering the introduction of a VTS, the authority should verify that its operation will be in accordance with international and national law.

3. When planning a VTS, the VTS authority should be guided by criteria such as:

1. The general risk of marine accidents and their possible consequences and the density of traffic in the area;

2. The need to protect the public and safety of the environment, particularly where dangerous cargoes are involved;

3. The operation and economic impact on users of the system and the marine community as a whole;

4. The availability of the requisite technology and expertise;

5. Existing or planned vessel traffic services in adjacent waters and the need for co-operation between neighbouring States;

6. Existing or proposed traffic patterns or routeing systems in the area, including the presence of fishing grounds and small craft;

7. Existing or foreseeable changes in the traffic pattern resulting from port or offshore terminal developments or offshore exploration in the area;
8 the adequacy of existing communications systems and aids to navigation in the area;

9 consultation of interested parties and assessment of proposed procedures;

10 meteorological factors such as weather and ice conditions;

11 hydrological factors such as tides, tidal ranges and current; and

12 narrow channels, port configuration, bridges and similar areas where the progress of vessels may be restricted.

4 A VTS area can be divided into sectors but these should be as few as possible. The boundaries should be indicated in appropriate nautical publications.

5 Area and sector boundaries should not be located where vessels normally alter course or manoeuvre or where they are approaching convergence areas, route junctions or where there is crossing traffic.

6 VTS centres in an area or sector should use a name identifier.

7 Reporting points should be clearly identified, for example by number, sector, name and geographical position or description. They should be kept to a minimum and be as widely separated as possible.
APPENDIX 2

RESEARCH ORGANISATION

1. As mentioned in Section 4.1.3, the whole of the Seaspeak Project, up to the termination of work on Seaspeak for VTS (Weeks et al. 1984 [8]), was based on an idea by the author contained in Essential Maritime English (Weeks 1979 : 311). This idea was developed by Professor Peter Strevens and the author, working as a team.

The conception and formulation of a plan of work and a strategy to find the necessary funds was the task successfully executed by the above before the full Seaspeak team could be formed.

The author acknowledges with great gratitude the inestimable help given by Professor Strevens up to the completion of Seaspeak for VTS, and his continued encouragement thereafter. The author also gratefully acknowledges the major contributions made (up to the termination of “Seaspeak for VTS”) by his former colleagues on the Seaspeak Research Team, Lieutenant Commander Alan Glover, RNR, Master Mariner and Airline Pilot, and Edward Johnson, MA, now Director, Wolfson Communications Unit, Cambridge University.

2. The business management and academic verification of the Seaspeak Project was undertaken from November 1981 to
September 1983 by Language Management Ltd., the contract being funded jointly by the Department of Trade and Industry of the British Government and (principally) Pergamon Press, Oxford. Language Management Ltd., was at the time an applied linguistics consortium consisting of: Professor C. N. Candlin (Lancaster), Professor J. Mc H. Sinclair (Birmingham), John Webb (Colchester), Professor H. G. Widdowson (London) and Professor P. Strevens (Cambridge), with A. Abrahams (Centre for British Teachers, London) as Managing Director.

Everyday business management was carried out by Alan Davies, B.Sc.

3. To ensure continuous quality control, all activities came under the scrutiny of a steering committee, which comprised representatives from:

- International Maritime Organisation
- Department of Transport, UK Government
- Department of Industry, UK Government
- Pergamon Press
- Distinguished academics from Language Management Ltd.
- The Seaspeak Team, as shown above.

4. Interrelationships within the Seaspeak Project were as shown in the diagram below:

5. The role of the author within the Seaspeak Project is described in Chapter 1.
REPORT OF VISIT TO HIGHER MARINE ENGINEERING COLLEGE, LENINGRAD USSR

BY F F WEEKS

The visit took place between October 31st and November 6th 1982.

Brief description of College

The Leningrad College is one of five Higher Marine Engineering Colleges in USSR, all of which are of approximately the same size at three thousand students each.

The Colleges are monotechnics and are quasi-military in organisation. All Cadets are in uniform, as are all but a few members of staff. Rank and uniform appear to closely follow the Soviet navy.

The college at Leningrad is housed in three locations. Two are in the city, and contain the navigation and engineering sections from year three and up. Both these sections will eventually be transferred to a new purpose built college campus at Strelna, some thirty kilometres from Leningrad. The first and second year cadets, and senior officer courses are already housed at Strelna, which is as large as many universities.

The cadets do five years at Leningrad before proceeding to the fleet. This period appears to include at least two cruises on special Cadet ships. A series of updating courses is compulsory, the most significant for this Project being the ten month updating course in English.

Every good office was extended to the Project, and the visit was well worthwhile, despite its high cost. It is felt that Russia could give very significant help in accelerating the progress of Seaspeak through the corridors of IMO.

NOTE: Please refer to Appendix 6 for overall Guidelines for conduction Field Trials when reading this Appendix and Appendices 4 and 5.
An operational situation was not available in USSR, therefore classroom situations were exploited to the full.

Classroom briefing of all lecturers involved with trials was held before presenting to class. Session of two and a half hours at which trial methodology for various classes was discussed, and various Seaspeak items explained.

Classes were four in number and comprised:

(a) Class of twelve fourth year Cadets, age about twenty two, having had two years basic English, two years Nautical English (two groups).

(b) Class of ten fifth (final) year Cadets, aged about twenty three, two years basic English, three years Nautical English.

(c) Class of sixteen senior officers engaged on ten month, 1200 hour courses in Nautical English. Age between twenty eight and fifty. Rank, Chief Officer or Captain.

Methodology employed

It was impossible to tell if a cross-section or a specially chosen sample had been supplied. Therefore tests were devised to take account of the expected level of the students by year.

For the Cadet groups following ideas were followed:

1 Discuss the general idea behind Seaspeak, with special regard to safety of life at sea.

2 Read over an example with role playing by FFW and Russian English-language teacher in language lab., using headphones.

3 Ask series of questions based on example broadcast. Those used for Example 4 were as follows:

Q (i) What did ship want?
(ii) Why?
(iii) Where will tugs meet ship?
(iv) The ship was ordered to reduce speed. What was that speed?
(v) Where did she have to slow down?
(vi) The ship was ordered to keep VHF watch (stand by) Which channel?
(vii) Why did she have to keep VHF watch?
Score, Group A, first test: All correct, no errors in comprehension.

Method of scoring: individual questions at random by FFW.

Written replies requested, but refused by Russian teacher for unspecified reasons.

Second test. Example 2 as follows:

Q (i)  What working channel?
(ii)  What signal strength?
(iii) Which side for Pilot ladder?
(iv)  Ship must reduce speed. What speed must she reduce to?
(v)   Why must ship reduce speed?
(vi)  Ship must alter course. Which way?
(vii) Why alter course?

Score Group A, second test.

Q (i)  All correct.
(ii)  All correct.
(iii) All correct.
(iv)  All correct.
(v)   NOT UNDERSTOOD BY ANY STUDENT
(vi)  Not clearly understood.
(vii) All correct.

Remarks on Group A

(a) Students found TAG words MOST useful, and used them spontaneously in making up short dummy messages. Actual tag words were not unanimously praised.
   (see other sections)

Group B (Cadets from same year (4))

Results of both tests in concordance with those of Group A.

Group C (5th year Cadets)

Only example 2 was tested due to lack of time.

Score:

Q (i)  All correct.
(ii)  SLIGHT MISUNDERSTANDING
(iii) OK
(iv)  OK
(v)   OK
(vi)  OK
(vii) OK

Group liked tag words, but again, individual tags were doubted.

Controlling Station concept too difficult for class.
Group D (Senior Officers)

This was considered to be the most significant group, since all were experienced navigators.

Two different techniques were used.

(a) as with Cadets, but at a higher speed.
(b) to produce a written synopsis of facts, from a single transmission.

(a) The following questions were used, from example 1

(i) What was the ship's callsign?
(ii) Who was she calling?
(iii) What was the working channel?
(iv) What was the received signal strength?
(v) The ETA position was given. Where was it?
(vi) What was the ETA?
(vii) What were the ship's dimensions?
(viii) At what time was the pilot due to board?
(ix) What time zone was used?

Score:

All items were received correctly except item (v) when CB was heard and not SB.

(b) Example 4 was read at normal speed, and students were then asked to give a written synopsis of message.

Result attached.

Score:

All items were correctly received except that "26" (TWENTY SIX) was received instead of "TO SIX"

See suggestions.

At the conclusion of this session a seminar was held.

Results under Item 4 and 6.

3 Comments of staff

Generally, whole idea was well received. The following items were discussed, under operational content.

Safety: the staff were worried that non-safety items were used in examples. Thought this should have been done. Otherwise operational content OK.

4 Students, particularly senior students, expressed the same reservations.

5 All lecturing staff consulted (8) thought that Seaspeak would be easily taught, because it showed logic both in the procedure and

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the language. Worry was expressed that the teaching book should contain an example of as many different types of message as possible.

6 General comments of teachers and students

(i) Suggestion is that Phonetic Alphabet should be specified for first utterance of abbreviations such as ETA, VHF etc. Because of difficulty in pronunciation of individual letters for non-native speaker. For example "s" is difficult for Russians.

(ii) COMPLY is very difficult. Other word must be found. Suggest AGREE.

(iii) SAME TIME should not be used. Phonetically easily confused with SOMETIME. Suggest substitute WHEN.

(iv) Suggest use "I" instead of "This is" in ship identification. For example "I am Russian ship Stravinsky" NOT "This is Russian ship Stravinsky".

(v) Confusion occurs over use of words "Agree", "Positive", "Negative". Is difference clearly enough shown?

(vi) Example is needed of signal strength other than "five".

(vii) Good idea to make up a table showing for example,

<table>
<thead>
<tr>
<th>WORD</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roger</td>
<td>Your message acknowledged.</td>
</tr>
</tbody>
</table>

(viii) Questions should always be read back as a matter of course. This should increase clarity.

(ix) PROMPTLY is NOT acceptable. An unknown and difficult word. Should be replaced with IMMEDIATELY.

7 No exercises were conducted with pure communicators, but a communicator (ex-radio operator) was consulted. Expressed concern that MEDICAL SECTION of INTERCODE should be used. Explanation given.

8 Communicator expressed general approval of whole concept

9 It was not possible to obtain the assistance of the local Port Authorities for the conduct of operational sea trials.

10 Staff scored as follows:

"A" Age about 35. I/C all maritime English training in Russia. Lady. Score 9.

"B" Head of English Department. Trained at Oxford University. Man. Age about 45. Score 8.

"C" Head of Navigation section, English Department. Age about 35. Lady. Score 8.


"F" Teacher Nav Section Age 52. Author. Man. Score 9.

"G" Teacher Nav Section Age 35. Lady 1/C Refresher Co. Score 9.

General Remark: An astoundingly high general standard of English was exhibited by staff, especially considering lack of contact with English speaking peoples.

11 Students:

These were more difficult to assess, because of difficulty of individual contact. Following representative contacts were made.


"B" Fifth year cadet. Score 6.

"C" Refresher course Captain. Age 50. Score 7

"D" Refresher course Chief Officer. Age 35. Score 7

12 Unanimous opinion of staff is that Seaspeak should be commenced during third year, that is when a two year foundation of general English has been firmly laid.

13 (a) New intake Cadets are often "zero start" since they may have studied French or German at school, not English.

(b) Schoolboy approach is used. Total of three hundred hours English in two years.

(c) "Maritime" approach is only used for the most senior Cadets, then limited because cadets have cadet ship service only.

(d) Updating course at twenty seven years uses full maritime English because maritime English exposure good.

(e) Hardly any teachers have sea experience. Most are ladies.

14 There is only limited co-operation between language and navigation departments, especially during first two years as Cadets.

15 No use is currently made of simulators. Opinion divided as to whether navigators will allow language teachers to use it.
16 Controlling Station concept seemed difficult to grasp, for the students. Comment was asked for from Group D only, but they seemed not to understand concept.

However, teachers' comment was that Controlling Station was making easy difficult, but that it should be taught, then, perhaps the concept explained later.

17 Switch Over Rules. Accepted in total, but time delays could be reduced slightly - as they will do in practice anyway.

18 Readability Rules. Accepted entirely. But see comment on provision of suitable examples.

19 Termination procedure. Was considered in conjunction with Controlling Station concept, and was accepted entirely.

20 Deliberateness. All Group D Officers thought that the procedure was slow, but conceded that this gave an overall saving of time because repetitions were avoided. An experiment was made cutting out the procedures, confusion occurred, and the point was made.

21 38 items are a reasonable learning load.

22 No real difficulties, but refer to Russian pronunciation problems, especially 's' and 'th'.

23 No problems in recognising differences, but again objection raised on COMPLY.

24 Quantity of material quite alright.

25 Simple pattern was liked, even admired, because of the clarity of expressing ideas that it produced. It was thought that there would definitely be interference from Full English but that this could be coped with. The students believed that they would automatically use the 'radio mode' when required. Teachers were fully in accordance. Patterns easy to learn.

26 Quantifiable prefix fully accepted.

27 Acceptable.

28 Teachers felt that a checkback system should be taught, but did not think that it would be used, except intuitively, or in special circumstances. There seems no better way of checking.

29 It was universally agreed that a firm basic knowledge of English is necessary before attempting to learn Seaspeak. The Russian system depends, like every other, on the school system below it. This produces mostly boys trained in English, but some trained in German or French.
Thus all are treated as "zero start", which is not popular with the English speaking entrants. This continues for two years (300 hrs). All teachers were therefore adamant that Seaspeak should be introduced not before year three. Most suggested year four.

30 No real difficulties found.

31 Communicative purpose, according to teachers, is an integral part of planning for message transmission. It therefore is an essential part of Seaspeak. The communicative purpose was easily identified from the Examples.
APPENDIX 4

REPORT OF SEASPEAK TRIAL VISIT TO KOTKA SCHOOL OF MARITIME STUDIES, FINLAND

9-14 NOVEMBER 1982

Introduction

Kotka College is situated in a busy Baltic port 45 km from the Russian-Finnish border. The location is particularly interesting since this port is iced up for several months each year during which time icebreakers are active.

I had three working days during which most of my time was spent at the college with college staff and students preparing for Mates and Masters tickets. However, in addition I was able to visit the shore station (Kotka Radio), and the Harbour Master's Office. Also, thanks to the enthusiasm of Liisa Niinisalo, the lecturer responsible for English at the college, I was able to have a long session with the Kotka pilots at the Pilot station which culminated in a trip on an outward bound freighter with one of the pilots. This also gave me access to the off-shore pilot radio station based on an island in the Gulf of Finland.

On the last day I was interviewed by two newspapers of differing political affiliation. Everyone had been well briefed in advance of my visit. I was received with courtesy and kindness. I had been led to understand that several people had serious criticisms to make... However, many of these were attributable to the lack of detail in our demonstration pack.

Institutes and people contacted.

Kotka School of Maritime Studies
Kotka Nautical College
Lehmustie 4
48130 KOTKA 13

1. Pentti Kerppola, Chief Lecturer (Navigation etc.), Captain.
4. Liisa Niinisalo, Lecturer (English) M.A., Mag. Phil.
5. Matti Vittaniemi, Chief Lecturer, M.Sc. (Polytechnic)
7. Ragnar Backstrom, Dipl. Ekonom, Vice Consul of Denmark in Kotka.

Kotka Pilot Station
Ruukinkatu 16
48100 KOTKA 10

1. Captain Yrjö Kokko (Chief Pilot)
2. Captain Erkki Autio
3. Captain Tapani Wennerstrand
4. Captain Osmo Vuori järvi
5. Captain Jouko Kaivisto nen
6. Captain Osmo Suominen
I

Harbour Master's Office
Laivurinkatu 7
48100 KOTKA 10

1. Assistant Harbour Master Juhani Kauttinen
2. Captain Erkki Lantta (Master of the Viikari, Harbour Tug/Icebreaker)

Kotka Radio Station
KUMBUTIE
16A36

1. Jaakko Oksanen

Brief Outline of Activities

On the morning of the first active day, I had lengthy discussions with the teaching staff of the college and was taken on a tour of the college. I was then taken over to Kotka radio station where I observed the operator taking calls and discussed Seaspeak with the operator who had been sent material by Liisa Niinisalo. In the afternoon I addressed a mass audience of all Captains, Mates and staff of the college. This was a helpful strategy in that it obviated the need to go through the same introductory material with individual groups. I had the chance to explain what Seaspeak was trying to do, how it attempted to do it, and how it had changed since production of the Demonstration Pack. Following the lecture, I was introduced to a highly talented technician who had patented a new type of microphone which eliminated unwanted noise. He had also adapted the simulator in the college for communications practice. This included a mechanism for introducing such features as interference and low-power transmission.

The following day was non-stop trials with different groups of students throughout the college during which time I tried a variety of activities.

The third morning continued the work of the previous day with the most advanced group of Captains. The same afternoon I visited the Harbour Master's Office where I witnessed some VHF conversations preliminary to a ship entering. The most useful contact there was Captain Erkki Lantta, Master of the VIIKARI (the Kotka Tug/Icebreaker).

After that I went to the Kotka pilot station where six pilots, already briefed, were waiting to give me their opinion of Seaspeak. That evening I accompanied Captain Kolvistoitenen on an outward-bound freighter and in addition to observing pilotage, had a helpful conversation with the master who was one of the very few Swedish speakers I encountered during my visit. I spent an hour at the pilot pick-up station on Oregrund island and listened to the pilot contacts in Swedish, Finnish and Russian.

Much of my last morning was given over to press interviews.

Classroom Activities

The following five activities were tried in an attempt to guage the practicality of Seaspeak as a language system to be taught and also as a language system to be used in an operational context.
most of his VHF conversations during ice operations. Quite sufficient, in fact, for us to include an ice convoy example in the manual.

Response to Seas Trials guidelines by PW and EJ - 28/9/82

1. It was possible to introduce the whole college to the principles of Seaspeak.

2. I was not able to observe an introduction of Seaspeak since that had already been done prior to my visit.

344. There were no comments about the operational content.

9. The lecturer concerned did not feel qualified to judge at this stage the teachability of the material.

6. Comments and suggestions are included under separate headings.

7. -

8. -

9. It was not possible to test Seaspeak in an operational context but it was possible for one of the Seaspeak authors to be present during a piloting operation involving the use of VHF.

10. -

11. Most of the Masters that I met would fall into the middle-level categories on the scale but were highly competent in maritime English. The Mates classes had high comprehension skills yet hesitated in production and would probably score 3 on the scale provided.

12. In my opinion Seaspeak could be introduced right at the beginning of the Mates training and in combination with communication classes.

13. A language laboratory is used. Maritime English is attempted by parrot learning SMMV. The methods used are far too literary. Several classes seem to be engaged in activities which were merely an extension of school English e.g. writing of essays.

14. There are very close links between the departments but I doubt if there is any useful cooperation. All expressed a willingness to cooperate in the context of Seaspeak.

15. Yes. It is used and language is already practiced in it. Liisa Niinisalo made the point that navigation lecturers will need to learn Seaspeak!

16. Accepted as logical but no estimates as to how practicable to learn and apply.

17. Accepted totally - (revised version eliminating waiting periods).

18. Should be optional (could be solely a free tagmeme E.J.)

19. Accepted.


22. I wish I had had a recording from another language community with me to actually test this. Otherwise no comments.

23. Few problems - tested this. When producing messages a tendency to put marker after utterance. Problem with 'Request' since this is a question form presently. Need for an 'Intend' marker - see Further Points.

24. Suspect that we have got it about right but difficult to define 'quantity of information': Individual quantifiables can be several if properly organised but a complex instruction may have to stand alone.

25. They said that practice might make perfect.


27. Agreed.

28. They thought it depended on the context but agreed that the standard should be stated.

29. Early e.g. first or second-year Mates.

30. Controlling station, pauses, Captains dropped the message markers.

31. They could do this and went further to provide me with a list of common communicative purposes.

32. This was done - results included with report.

Further Points

1. All felt a need for a trimming down of the system. Of course, we have already considered this.

2. Captains complained about poor English in many parts of the world and were worried about pronunciation problems. Seaspeak should help with both problems.

3. The question of command status is still difficult. A good example was quoted to me. A German ship was following the local icebreaker and ran aground. The German insurers claimed that the Finn was responsible but subsequently dropped the claim. Icebreaker master's commands are commands but ultimate responsibility still rests with Ship's master. We need to revise definition of command.

4. I think we need an 'Intend' marker to distinguish intention from mere information giving. Captains felt that the 'Inform' tag was too weak for this purpose.

5. The Harbour Master gave me copies of a useful medical questionnaire which uses number codes to assist with diagnosis.

E. Johnson
25.11.92
1. Listening Test.
2. Test results
3. Press cuttings
4. Ice breaker contacts
5. Medical questionnaire in English, Spanish, French, German and Finnish.
6. Tape prepared by students at Kotka School of Maritime Studies.
Example 1.

Question 1. Addressee's name? Answer 1. ................................
Question 2. Caller's name? Answer 2. ................................
Question 3. Caller's call sign? Answer 3. ..............................
Question 4. Readability? Answer 4. .................................
Question 5. ETA (position)? Answer 5. ...........................
Question 6. ETA (time)? Answer 6. ..............................
Question 7. Ship type? Answer 7. .................................
Question 8. Length of ship? Answer 8. ...........................
Question 10. Tonnage? Answer 10. ...........................

Example 2 (Part 1.)

Question 1. Calling channel? Answer 1. ............................
Question 2. Working channel? Answer 2. ..........................
Question 3. Readability? Answer 3. ..............................
Question 5. Why standby on channel 12? Answer 5. ..........

Example 2 (Part 2)

Question 1. Why reduce speed? Answer 1. ..........................
Question 2. Turn which way? Answer 2. ..........................
Question 3. Why turn? Answer 3. ..............................
Question 4. Does common agree? Answer 4. ......................
Example 1.

Question 5. What is the advised speed? Answer 5. 

Example 2.

Question 1. Calling channel? Answer 1. 
Question 5. What is close to the edge? Answer 5. 

Example 3.

Question 5. Standby channel? Answer 5.
Example 1

Question 5. How long will they take to deliver? Answer 5.

Example 2

Question 2. Where is receiver? Answer 2.
Question 3. What is on deck? Answer 3.

Example 3

Question 2. When is ship leaving? Answer 2.

Example 4

Question 2. When is discharging complete? Answer 2.
### Example 11

|---------------------------------|-----------------|
APPENDIX 5

REPORT OF VISIT TO ARAB MARITIME TRANSPORT ACADEMY, SHARJAH - UAE

BY E A L GLOVER

The visit took place between 21 and 28 November 1982

Description of College

The Arab Maritime Transport Academy (AMTA) is a Pan-Arabic establishment set up by the League of Arab States to replace the facility in Alexandria which now only accepts Egyptian nationals. It is financially supported by Jordan, United Arab Emirates, Bahrain, Saudi Arabia, Sudan, Somali, Syria, Iraq, Oman, Quatar, Kuwait, Lebanon, Libya, South and North Yemen, Palestine Liberation Organisation, and Tunisia. The same countries are also represented on a Board of Directors who control appointments, budget and regulation. Students fees are paid by shipping companies ($5000 - $7250 for a cadet, $3000 per term for a senior student).

AMTA is a mono-technic with a student population of three hundred and fifty students, approximately half of which are engineers and half deck. There is no military connection, the lecturers being civilian very few of whom wear uniform. All the junior students are in uniform as an attempt is being made to impose some discipline in terms of attendance. All the engineering and deck disciplines are taught but there is no radio, administration or shipping economics department yet. It is hoped to open these during 1983.

The training course consists of two years basic studies in four semesters (classes "1 - 4N"), followed by eighteen months sea service after which the student returns to AMTA for a sixteen week upgrading (class "2nd Mate") prior to the final examination for 2nd Mate's certificate.

First Mate and Masters courses are also held but because of the newness of AMTA the students on these courses all received their intitial training elsewhere. (Alexandria, Iraq UK).

Formal training in Maritime English finishes at the 2nd Mates examination level. There is a requirement for entry to the school that English was studied at a secondary level by the applicant but this is not adhered to as it would prevent too many students from entry. The English course at AMTA consists of two hundred and fifty six hours during the basic training period and thirty two hours during the upgrading prior to the 2nd Mates examination. The English paper is allowed two hours, has a pass mark of fifty per cent and failure in this paper automatically means failure in the 2nd Mates examination. Fourteen hours of training is also given in the use of Marine Radio Telephones. A problem particular to Arab students is that no nautical textbooks, almanacs, or navigational tables are written in Arabic. The result of this is that all their textbooks and examinations are written in English and they are expected to be able to write their examination answers in English. (although Arabic written answers are accepted if the substance of the answer is correct). The knowledge of English required of them is therefore greater than required of a European maritime student although their ability is usually less.
Appended to this report is a list of the teaching materials currently in use at AMTA.

Trials

Numbered paragraphs refer to the instructions/questions listed in FFW's memorandum of 28 September 1982 entitled "Seatrials". (See Appendix 6)

1 The lecturers at AMTA had taken considerable trouble to introduce themselves to Seaspeak from the Demonstration Pack. Because of the limitations of that publication it was necessary to spend some time correcting misapprehensions. No operational trials were conducted although a visit was made to Dubai Port Control.

2 Introduction of Seaspeak to students in the second and fourth semesters and in the 2nd Mates course had already been conducted by the lecturers prior to my visit. However, in view of (1) above it was necessary to conduct a re-introduction myself. This was done with 2nd, 3rd and 4th semesters and with 2nd Mates. I also gave a presentation on Seaspeak to 1st Mates and Masters followed by question and answer sessions.

3 As the lecturers were not seafarers they were not in a position to comment on the operational content of the material. The best comments were obtained from strictly maritime lecturers and from senior students.

4, 5, 6

The comments obtained are reported in the appropriate sections of this report.

7, 8, 9

These instructions are not applicable at Sharjah.

10 There are three lecturers in Maritime English at Sharjah AMTA

Miss J Huxley British Score 10 (graduate Oxford, published comprehension tests and designed syllabus for AMTA)

Miss S ? Syrian Score 8½

Mr M Shammat Syrian Score 7 - 8

11 Basic Course

2nd semester 2 - 4
3rd semester 3 - 5½
4th semester 4½ - 6
2nd Mates 3 - 5½

There is no formal training in English above this level and also students in the senior courses did their original training at other establishments.

1st Mates 3½ - 6
Masters 5 - 8

* The decline in ability between 4th semester and 2nd Mates is attributed to the fact that some students do not visit European/Native English speaking ports during their eighteen months at sea.
12 In view of the non-maritime background and initial very poor English of some students at AMTA it is necessary for them to receive a grounding in English before attempting Seaspeak with its close relationship to the maritime context. It would seem that the 3rd semester is the best time to introduce it for this reason.

13 The approach varies between the lecturers and with the ability of the students. J. Huxley was mostly "Classical" whereas Samia and M Shammat use a mixture of "Classical" and "Schoolboy." None of the teachers are sailors and they have little experience of the maritime world. A language lab is used extensively. See Appendix 1 for details.

14 As AMTA is very much in the early stages of growth it has a UN IMO technical advisory mission (Alan Lester and an Engineer attached.) A lot of co-ordination is done in the school by this mission but when it is terminated (end 1982) it is possible that this will cease. The co-operation at present is desultory and motivated by the IMO mission and the need for written English to be used in all disciplines. (Incidentally the school that was in Iraq worked entirely in Arabic and lecturers at AMTA say that this was a failure). Co-operation in preparing material in English for non-language nautical training however is good as the other lectures need it.

15 There is a radar simulator but it is not used for communications training. The two VHF sets are in the navigation equipment room and are used solely for instruction in the technical aspects of their operation.

16, 17

The reaction to these concepts was favourable.

18 It was said that the readability rules caused too much repetition and therefore wasted time "on the air".

19 A favourable reaction.

20 The main comment by all levels of student was the amount of repetition involved. It was felt that it would not be necessary to address and identify each transmission as you can tell who is speaking by recognising their voice. Comment was made by senior students on the repetitions involved in reading back to ensure correct reception and the length of time that this took.

21 The lecturers thought that there was no problem with teaching the message management phrases/words.

22 With this regard the point was made that there are all the European sounds in the Arabic alphabet and some more as well so that there was no pronunciation problem for native Arabic speakers. I felt that this was born out by the better trained students.

23 Yes there are problems in this particularly between the different shades of command. It was felt by the lecturers that this could be overcome with teaching but my contact with the students leads me to disagree with this view.
24 The lecturers felt that the use of intensive listening training in the language lab would increase the amount of information that can be accepted in one transmission but it was generally agreed that limiting the amount of information was a good idea. No guidance on the quantity per transmission was forthcoming however.

25 As most practical communications on VHF radio were made in simple sentences anyway, it was felt that this was no problem, particularly if radio English training were separated from the main body of Maritime English.

It was felt that interference from full English already learned would be a problem.

26 General approval was expressed with the Seaspeak system of quantifiablies.

27 This idea is very acceptable and it was suggested that it be extended if possible. (Lecturer's comment - incorrect English is not acceptable but shortened English is acceptable).

28 As mentioned at (20) above, there is resistance to the amount of checking. The feeling by senior students and lecturers was that good students will short circuit this system in use but that poor students will like the repeats for confirmation of their original transmissions. It was also felt that the long dialogue involved will be tedious and that this will be another cause of short circuiting.

No alternative was offered but it was suggested that in training it should be pointed out that short circuiting could be dangerous and if it was used it was your own fault if things went wrong.

29 It was felt necessary by lecturers to take the students to the elementary English level first, in order to catch sub standard entrants, before starting ESP teaching. The 2nd year (3rd semester) was considered to be the appropriate time. A secondary reason for this was that students would have obtained a good knowledge of nautical terms by this time from their instruction (in English) in other subjects.

30 Do we speak the tags or are they for information only?
What does the Controlling Station do?
What is the use of "stayon", we already have "over" so why is it necessary?

31 Yes they did. Lecturers considered it a useful tool for training in making people think about what they were saying.

32 The following list shows the result of listening comprehension tests conducted with two examples in the language lab by 4N and 2nd Mates. The tape used was of AMTA students reading from the Demonstration Pack. The most common faults were:
not being able to spell proper names... (ie they were received phonetically).
Receiving the letter B as P if the phonetic alphabet was not used.
Understanding large numbers transmitted using the word "thousand."
The faults were evenly distributed between 4N and 2M. The majority of the questions were answered correctly.

General Remarks

In addition to the comments already made the following came up in discussion with the students:

How can we assure that everyone will use this system?
Will it be possible to force native English speakers to use only Seaspeak?
How do we intend to deal with the problem of dialects in native English speakers particularly?
Why must Seaspeak users be limited in the amount of politeness that they can use?
Are we working to an American English or an English English base? An English English base would be preferable.
Why can't phrases like "OK" be used as they are international?
Can we cut down the amount of repetition in Seaspeak?
Can we train native English speakers to stop using slang and colloquialisms?

A. Glover
13 December 1982
Appendix 1 - Teaching materials in use at AMIA

The main course is based on Van Ek's "Threshold Level" "Notions for the Marine Environment."

IMO's STCW'78 (Standards for Training Watchkeepers) para 16 page 36 has been noted in constructing the course.

Language lab - this is a Tandberg IS9 learning laboratory with thirty student positions and of Norwegian manufacture. It seems a sophisticated piece of equipment.

Publications/Tapes in use:

Kernel
Wavelength
English Situations - O'Neill
Guided paragraph writing - Jupp and Milne
Beginning Scientific English - Royds and Irmak
The language of the Merchant Navy in English

Limited numbers of copies of various publications. The ones individually listed above are those that are in sufficient numbers to distribute and are in most use.
Appendix 2. Training material design

The following suggestions were made about the design of training materials.

1 Drills

These should be 4 phase ie

1) Hear
2) Respond
3) Hear Correct Response.
4) Respond correctly

2 Pictures

Pictorial representations are of considerable use to less advanced students.

3 Feedback

As much as possible should be obtained from teachers worldwide so that the books are written to teachers requirements rather than to the author's ideas of what teachers requirements should be.

4 Tapes

a) These should contain provision for pauses to allow for repeating by the student. It is most beneficial if the student can listen to his attempt and compare it with the original. This provides an automatic practice facility which is much needed.

b) Recordings should be made by native speakers of English so that the "correct" version is really correct.

c) Live recordings of conversations on VHF in real life situations would be of considerable value in injecting "Nautical" emphasis into Maritime English training. It should be remembered in this regard that almost no Maritime English teachers have any seafaring background.

5 Practice Material

A large amount of practice material is required as there is considered to be no substitute for making the students do things themselves as much as possible.

6 Initial Training

For students with little knowledge of English and from non-European cultures it is necessary to make the initial presentations as short as possible so that they do not become overloaded. Each item should be treated separately and it should be remembered that at this stage students will have little nautical knowledge therefore maritime technicalities should be avoided.
APPENDIX 6

GUIDELINES FOR CONDUCTING FIELD TRIALS

Methodology

1. In the local leading maritime college to introduce a maritime English lecturer to the content of a small section of Seaspeak. The section used should be the one that it is intended to try in an operational environment in that country.

2. To observe the introduction by the lecturer to students of the material mentioned in 1. above.

3. To solicit comments from lecturing staff on the operational content of the material.

4. To solicit comments from students on the operational content of the material.

5. After 2. has been performed, to solicit comments from the lecturing staff on the teachability of the material.

6. To obtain constructive comments and suggestions as to methods of removing any defects in the material which are thrown up by the comments at points 3, 4 and 5 above.
7. The above to be carried out with lecturers and students involved in the operational side of the maritime field - not pure communicators.

8. To introduce the material to the communications section of the maritime college for general comment only.

9. If possible to obtain the assistance of the local Port Authorities for the conduct of operational sea trials.

General

10. Establish, using the scale below, the language ability of the lecturers in the college in question. (Note: although a person in each College is known by FFW, a further opinion is needed). Use the scale below:

10 - Would be scored by a person who was completely bilingual, and who had complete grasp of all English idiom and everyday slang appropriate to his socio-economic group. In my experience no-one can achieve this unless he is a native speaker, or has been resident in an English speaking country for a prolonged period.
9 - Within this group one would expect to find interpreters, overseas lecturers in English (non-native British) and similar highly qualified individuals. Conversation in a common profession would be entirely without problem.

7 - Still a very high level of competence but some difficulties would start to appear in expressing complex ideas or processes. At least as high a level as achieved by a UK Honours graduate in languages.

5 - Competence in everyday language, but always expressed in a non-idiomatic way. Real difficulties with expression of ideas. Narrower vocabulary may not embrace professional terminology. About equivalent to UK 'A' level standard.


1 - Single words, or simple phrases only.

Please do this subjectively, i.e. by 'gut feeling'. To test formally will destroy confidence.
11. Do the same for students, if possible, making tests on new entrants and leavers, by simple interview.

12. Form your opinion on when students should be introduced to Seaspeak (and see item 29 'Message').

13. Enquire as best you can on teaching methods i.e. 'Classical', 'General Schoolboy approach', 'Maritime'. Are the teachers sailors or not? Is language lab used or not?

14. Is there real co-operation between language and navigation departments?

15. Is a radar/communications simulator available, and is it used as, for example, in Plymouth? Will the navigators allow access to the language teachers?

Procedure Points

16. Reaction to Controlling Station concept.

17. Reaction to Switch Over Rules.

18. Reaction to Readability Rules.

19. Reaction to Termination procedure.
20. Feeling about 'deliberateness' of the procedure, i.e. is it too slow/long winded?

Message

21. The list of phrases which 'manage' the conversation - 'readback is correct', 'this is', 'over', etc., is 38 items long at present. Do the colleges feel that this is a reasonable learning load?

22. Do they feel that these same words and phrases pose any pronunciation problems and/or listening comprehension problems, e.g. would a Chinese speaker saying 'leadback' rather than 'readback' pose any real difficulties? The same would apply to the function tags.

23. Regarding the function tags, of which there are 16, are there likely to be problems in recognising the differences between the different types of messages? We could perhaps say some different types of messages and ask students to give the appropriate functions.

24. The amount of information in a transmission, e.g. Ex 10 Page 28, ninth transmission S(CS). Is the quantity of information in that transmission:

(a) easily handled, or
(b) more than they can cope with?
Other longish transmissions could be selected for this purpose.

25. Sentence structure generally follows a simple pattern limited to a maximum of two prepositional phrases. Do the colleges feel that such patterns would be easy to learn? Do they also feel that there might be interference from Full English already learned?

26. Do they feel comfortable with the prefixing of quantifiables by the thing quantified, e.g. 'time one six zero zero local'?

27. How do they feel about replacing such phrases as 'because', 'so that', 'in order to' etc., by 'Reason'?

28. Do the colleges feel that users would, in practice, go through the checking steps necessary for both participants to be sure that there are no misunderstandings? If they feel that participants would not go through these steps, can they recommend alternative ways of coping with the problem?

29. At what stage in the English Language training of Bridge Officers would it be appropriate to introduce Seaspeak?
30. List the things which the colleges found most difficult to understand about Seaspeak when they were making their recordings.

31. We have tried to restrict the participants talking about one thing at a time by introducing the idea of communicative purposes. Do the colleges feel that this is reasonable and practicable? When they read the Examples did they feel that they could identify the communicative purpose?

32. Organise an exercise, if possible, to test users in digging out information from their own recordings, e.g. in Example 1 note the working channel, ETA, time, ship's description and pilot boarding time.

FFW/EJ : 1982
APPENDIX 7

BRIEF SUMMARY OF RESPONSES TO DEMONSTRATION PACK & SEA TRIALS VISITS

Controlling Station

Difficult concept (students and staff)                USSR
O.K. but word 'controlling' too strong              France
Logical but difficult                               Finland

Switchover 'Rules

No problems/comments                                  USSR
Accepted but time delays should be reduced           France
Accepted but eliminate waiting periods                Finland
Much to long-winded and complicated                  Arnold Field
Too long-winded (letter)                             Gothenburg, Sweden

Readability

Fully accepted but need examples of poor readability   USSR
Too long-winded                                       France
Should be optional (a free tagmeme? E.J.)             Finland
Too long-winded - not necessary if readability OK so time-wasting.  Gothenburg, Israel
                                                      Arnold Field

Termination Procedure

OK                                               USSR
OK                                               Finland
OK but 'stayon' needs explanation - not understood   France
Stayon response not understood (letter)              Japan

Feeling about procedure

Thought it was too slow but accepted it to be overall a good thing.  USSR
Demopack version too longwinded                     France
Generally too long-winded                           Finland
                                                            Gothenburg
Quantity of info. in a message

O.K. USSR
O.K. for reading but not for simulated VHF - suggest a set of simple guidelines for specific rules. France
O.K. but difficult to define 'quantity of info.' esp. complex instructions. Finland

Pattern of messages: easy to learn? interference from Full English?

Practice will make perfect. Finland
Easy to learn. Impressed. Yes interference but can cope with it USSR
Easy to learn but yes interference. Should learn pattern first before Full English. There is a social desire to show competence in the language therefore Full English interferes. France

Quantifiables' prefixes

Fully accepted USSR
Yes - a good idea. France
Yes Finland
Very good idea (letter) Japan
Not clear how to express figures (Karta etc.) Israel

"Reason"

OK. like it USSR

Would they go through the checkback steps?

See Language management meeting report + new checkback steps
See Arnold Field response

Only with exchange with poor station. No other suggestions France
Depended on context but agreed there should be a standard Finland
Teachers thought it should be taught but probably would not be used except in special circumstance or intuitively. USSR
Exchange Management Markers

Reasonable load
No problems
O.K.

(See words and phrases for individual word comment).

Words and Phrase Problems

No real difficulties
No comment

'area', 'pilot', 'read', 'readback' - problems
also see St. Malo annex to report.

'OK' instead of 'Agree'

Perhaps stick to words of not more than 3 syllables

Function tags

No problems except objections to COMPLY

Few problems - tendency to put marker afterwards. Problems
with Request v Question. Need an 'intend' marker.

Students and teachers thought there would be problems in
training people to think logically enough to select correct
tag.

Letters: most mentioned them. Much praise for the idea
as very good for helping discipline and avoiding
misunderstanding. But:

a. Response tags differ a lot so it is difficult
for non-romance language speakers to apply

b. Difficulty in being able to apply correct one
unless concept of each is very clearly defined
esp. advice, instruct, & inform. (See letter)

Also refer to Language management meeting comments.
What stage to start learning

Need a firm basic knowledge first. School +

First or second year mates

Start of nautical training

What posed most difficulty

None

Employing the message markers

Controlling station, pauses, dropping message markers

Could they identify communicative purpose?

Yes but need training

Yes, important and identifiable from examples (teachers)

Yes and produced some more for us
Other points:

a. Obviously each nation is concerned with its own pronunciation problems

b. Queries over international regulations. UTC v GMT Israel & France
   and see Captain Morrisons comments.
APPENDIX 8

EVALUATION OF SEASPEAK MARKER PRINCIPLE

CCG TRAFFIC CENTRE HALIFAX

CCG TRAFFIC CENTRE SAINT JOHN

1986

R C Shaw
Staff Officer
Training and VTS Quality Assurance
Canadian Coast Guard
Maritimes Region
SUMMARY

Between 12 September and 12 October 1986 eleven trained Marine Traffic Regulators from Canadian Coast Guard Traffic Centre in Halifax and Saint John conducted a trial using the SEASPEAK marker principles. The objective of this trial was to evaluate the effectiveness of the marker principle from Canadian VTS perspective.

It was found that use of the markers appeared to enhance the effectiveness of communications in many instances by imposing a more formal communications discipline on VTS staff which, in turn, simplified and clarified what was being said on the air.

To even the most casual observer, personnel using the markers sounded more purposeful and professional than when using an informal conversational style of communications. This in itself may be sufficient reason to advocate the use of markers as it tends to alleviate the concerns of mariners who may hesitate in placing their confidence in a group of individuals who do not sound as well trained as they should be.

Use of markers has potential beyond the scope of this trial, especially if adopted on a more widespread basis. This potential can most readily be understood if compared to the ability of non-anglophone aircraft pilots to interact with each other and with non-anglophone air traffic controllers by using standardized English procedural phrases.

It is recommended that use of SEASPEAK markers be viewed as a positive step toward standardizing VTS communications and that further work be done to identify and define SEASPEAK's operational parameters.
INTRODUCTION

The single element most vital to the effectiveness of VTS is communications. This is certainly not a new observation; however, until the introduction of the Standard Marine Navigational Vocabulary (SMNV) and more recently, SEASPEAK, very little was done to develop its VTS application.

Since 1981 SMNV has been used extensively by VTS in Halifax and Saint John. The adoption of SMNV was difficult and unfortunately, achieved no readily apparent results. The difficulties from a Canadian VTS perspective were encountered in (a) becoming accustomed to non-traditional English terminology such as saying "VESSEL INWARD" instead of "INBOUND" and, (b) using non-ITU terminology such as "point" instead of "decimal". In addition, SMNV phraseology has not received world-wide acceptance in marine communications and was not, therefore, reinforced through wide-spread use by mariners.

Given the amount of resources put into the use of SMNV and the lack of identifiable benefits to either VTS or vessels in Canadian VTS Zones, there was some hesitancy to embrace the principles of SEASPEAK without a very careful inspection of their potential use. The test which this report concerns, i.e: to evaluate the effectiveness of the SEASPEAK marker principle from a Canadian VTS perspective, was devised to give VTS management some insight into the potential benefits and problems associated with the markers in VTS communications.

A number of modifications to the SEASPEAK markers were necessary to allow for circumstances unique to Canadian VTS.

1. The SEASPEAK marker "ADVICE" was changed to "RECOMMENDATION". This was necessary because in the Canadian VTS context "advice" takes the meaning "information or notice given".

2. The SEASPEAK marker "INSTRUCTION" was changed to "DIRECTION" to bring the marker in line with proposed Canadian VTS regulations and, as well, to reflect industry's wish that VTS issue directions instead of instructions.

3. The marker "TRAFFIC CLEARANCE" was added to those suggested by SEASPEAK. This was done to emphasise the significance of a traffic clearance as an authorization to complete a manoeuvre as opposed to a piece of information which may or may not be used as the listener sees fit.

Thus, the markers used in the trials at Halifax and Saint John are:

- INFORMATION
- RECOMMENDATION (instead of ADVICE)
- DIRECTION (instead of INSTRUCTION)
- CLEARANCE
- WARNING
- QUESTION
- REQUEST
- INTENTION

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In using the markers a format change from SEASPEAK practice was introduced as well in that the "sub-markers" were not used, eg: where SEASPEAK would suggest: "INFORMATION: there are quantity: three ships anchored, position: buoy number five"; we would say: "INFORMATION: There are three ships anchored near buoy number five ...." thus attempting to give the communication a more natural flow.

The trial took place using selected staff from Canadian Coast Guard Traffic Centres at Halifax, Nova Scotia, and Saint John, New Brunswick, over a one month period from mid-September to mid-October 1986. The trial involved communications with 83 vessels representing 25 countries of registry. In total, communications taking place during 96 transits or trips were assessed.
RECOMMENDATIONS

It is recommended that:

1. Use of SEASPEAK markers be viewed as a positive step toward standardizing VTS communications;

2. The SEASPEAK markers as modified for the trials in Halifax and Saint John be considered for expanded national trials in which both VTS and shipboard personnel receive prior training; and

3. Canadian participation in the evaluation of SEASPEAK be furthered through a joint Canadian-European trial of full SEASPEAK procedures.
SEASPEAK MARKER TRIAL AND EVALUATION

SELECTION OF PERSONNEL AND TRAINING

Personnel selected to conduct the test were chosen with three primary factors in mind.

1. Correct use, as identified through quality assurance evaluations, of ITU, SMNV and national procedures.

2. Area of marine experience prior to joining VTS.

3. Willingness to constructively critique new and existing VTS procedures.

Correct usage of procedures

In Halifax and Saint John use of SMNV was introduced to augment ITU and national procedures in 1981. Personnel selected to conduct SEASPEAK tests have received training in all three procedures and have used SMNV for a minimum of one and a maximum of five years in a VTS operational environment. Correct use is determined by frequent quality assurance reviews. Those selected were among those who show a high standard of radio communications procedures technique.

Marine experience of staff

Canadian VTS operations staff are drawn from a wide spectrum of marine related careers. The test group was chosen to represent this variety in order to evaluate the SEASPEAK markers from as broad a perspective as exists in the field. Ten marine traffic regulators and one watch supervisor participated in the trials. Of these eleven, five have experience as radio operators; three are graduates (navigation branch) of the Canadian Coast Guard College and have experience as deck officers in the fleet; and two are former members of the Canadian Armed Forces (one radar plotter and one air traffic controller). The remaining person has advanced to high level VTS through offshore VTS positions.

All of the above staff have demonstrated an ability to criticize existing VTS procedures and offer constructive solutions.

Training

As all staff have received training in SMNV, ITU and national procedures, training focused on the use of SEASPEAK markers. Training was conducted at Transport Canada Training Institute in Cornwall, Ontario, in order to take advantage of the VTS communications simulator and associated training facilities.

This added significantly to the cost, (approximately $10,000) but ensured a higher quality trial in terms of standard application and evaluation of SEASPEAK markers than would have otherwise been possible. Additionally it permitted evaluation of SEASPEAK markers in simulated emergencies such as fire, sinking, grounding and pollutant spills as well as situations of higher traffic density than may have occurred during the trial.
Training consisted of a three day course, (two were conducted) in which SEASPEAK markers were introduced then used in increasingly more complex situations. Methodology was to introduce each new concept in the classroom then use it in simulated operational exercises. Following each exercise students listened to tape recordings of their communications then critiqued themselves and each other.
EVALUATION

The objective of the trial was to evaluate the effectiveness of the SEASPEAK marker principle from the Canadian VTS perspective.

Quantitatively it is desired to know:

1. vessel and trip date such as name, type and flag;

2. how many times each marker was used in communication with persons whose command of English appeared: poor, fair to good and very good; and

3. how many of these communications appeared to be ineffective (misunderstood or needed repetition) together with the reasons if known.

Qualitively, each of the VTS staff participating were asked to complete the following questionnaire.

1. Comment on each of the following markers in terms of its useability, modifications necessary or other relevant aspect.
   a. Information
   b. Recommendation
   c. Direction
   d. Clearance
   e. Warning
   f. Question
   g. Request
   h. Intention

2. Under what circumstances are markers (a) most and (b) least useful?

3. You have named, or considered, modification to individual markers; are there any system-wide modifications necessary?

4. During training and the actual test, the difficulty of mentally “pre-categorizing” all communications was mentioned several times. Are there ways to overcome this difficulty?

5. What were the biggest (a) advantages and (b) drawbacks to using the markers in VTS communications?

6. Were there comments made by others eg: mariners, other VTS personnel, etc concerning the effectiveness of the markers used?

7. Would you recommend that we continue using markers on a regular basis by all staff?
8. Do you have any general comments applicable to (a) the test or (b) future use of markers in VTS communications?

Results of quantitative analysis are as follows:

**NUMBER OF VESSELS COMMUNICATED WITH:**

<table>
<thead>
<tr>
<th>Flag of Registry</th>
<th>Number of Ships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>1</td>
</tr>
<tr>
<td>Bermuda</td>
<td>2</td>
</tr>
<tr>
<td>Canada</td>
<td>16</td>
</tr>
<tr>
<td>Columbia</td>
<td>1</td>
</tr>
<tr>
<td>Cyprus</td>
<td>1</td>
</tr>
<tr>
<td>Egypt</td>
<td>1</td>
</tr>
<tr>
<td>France</td>
<td>2</td>
</tr>
<tr>
<td>German Dem Rep</td>
<td>1</td>
</tr>
<tr>
<td>Fed Rep Germany</td>
<td>7</td>
</tr>
<tr>
<td>Great Britain</td>
<td>5</td>
</tr>
<tr>
<td>Greece</td>
<td>5</td>
</tr>
<tr>
<td>Israel</td>
<td>1</td>
</tr>
<tr>
<td>Italy</td>
<td>1</td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>1</td>
</tr>
<tr>
<td>Japan</td>
<td>6</td>
</tr>
<tr>
<td>Liberia</td>
<td>8</td>
</tr>
<tr>
<td>Netherlands</td>
<td>1</td>
</tr>
<tr>
<td>Norway</td>
<td>1</td>
</tr>
<tr>
<td>Panama</td>
<td>10</td>
</tr>
<tr>
<td>Philippines</td>
<td>2</td>
</tr>
<tr>
<td>Poland</td>
<td>2</td>
</tr>
<tr>
<td>Russia</td>
<td>2</td>
</tr>
<tr>
<td>Singapore</td>
<td>1</td>
</tr>
<tr>
<td>Spain</td>
<td>1</td>
</tr>
<tr>
<td>Sweden</td>
<td>4</td>
</tr>
</tbody>
</table>

**TOTAL NUMBER OF TRIPS OR TRANSITS DURING WHICH SEASPEAK WAS USED:** 96

POOR ENGLISH = 7  FAIR/GOOD = 54  VERY GOOD ENGLISH = 35
### MARKER USE/EFFECTIVENESS

<table>
<thead>
<tr>
<th>Number of Times Each Marker Was Used</th>
<th>Effective</th>
<th>Required Repetition or Clarification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>poor English</td>
<td>29</td>
<td>1</td>
</tr>
<tr>
<td>fair/good</td>
<td>110</td>
<td>8</td>
</tr>
<tr>
<td>very good</td>
<td>66</td>
<td>1</td>
</tr>
<tr>
<td><strong>Recommendation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>poor English</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>fair/good</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>very good</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td><strong>Direction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>poor English</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>fair/good</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>very good</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Clearance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>poor English</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>fair/good</td>
<td>41</td>
<td>0</td>
</tr>
<tr>
<td>very good</td>
<td>33</td>
<td>0</td>
</tr>
<tr>
<td><strong>Warning</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>poor English</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>fair/good</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>very good</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Question</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>poor English</td>
<td>21</td>
<td>6</td>
</tr>
<tr>
<td>fair/good</td>
<td>79</td>
<td>4</td>
</tr>
<tr>
<td>very good</td>
<td>47</td>
<td>0</td>
</tr>
<tr>
<td><strong>Request</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>poor English</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>fair/good</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>very good</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td><strong>Intention</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>poor English</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>fair/good</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>very good</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

In all cases when a transmission preceded by a marker seemed ineffective it was the opinion of the marine traffic regulator that the ineffectiveness was due to a factor other than the marker ie: very poor comprehension of English, poor sentence structure or selection of words by the MTR, interference by another transmission etc. In no case was ineffectiveness deemed to be caused by the use of the marker.

The results of the qualitative analysis by Marine Traffic Regulating staff are compiled as follows: In each case the backgrounds are indicated as: (R) = radio operator, (N) = navigating officer, (F) = Canadian Forces, (V) = VTS trained.
COMMENTS

1. Comments on usefulness of each marker:

(a) INFORMATION - A modified version of this marker "traffic information" has been in use at Halifax and Saint John for approximately two years; this may explain why ten of the eleven participants described it as effective, useful or very useful. The remaining participant (F) did not feel that SEASPEAK markers played a useful role.

(b) RECOMMENDATION - This marker was used sparingly; however, one participant (N) used it more often than most and felt that it worked well. Two comments 1(F) and 1(R) added that the words "Recommend you" should follow the marker when used. Irrespective of amount of use the same ten participants as in (a) felt that the marker was useful.

(c) DIRECTION - Direction was used only once - to direct a vessel to change sector frequencies. Three participants 1(R) and 2(N) felt that the word could be confusing and could be mistaken for a compass direction; however, it was also suggested that this potential problem could be overcome by use of the words "Direct you ..." after the marker. One participant (F) felt that markers are of no value and three 1(V) 2(R) offered no comment.

(d) CLEARANCE - Canada has a formal clearance procedure in place which begins "Ship name is cleared to" one participant (N) felt that the use of the marker CLEARANCE was frequently redundant in that (i) the ship was expecting a clearance because it had requested one and (ii) the present procedures clearly states its own intent. With the exception of the one person who felt that no markers were useful, the remainder said that it was effective.

(e) WARNING - Although the WARNING marker was only used twice, one of those had the immediate effect of alerting an inward bound tanker that its course at the time would take a starboard hand buoy on the port side. Eight 4(R), 3(N), 1(F) felt that this was a useful marker. Two 1(R) and 1(V) offered no comment and one (F) felt that it was not useful.

(f) QUESTION - Of the ten participants who commented that markers in general were useful all agreed that the QUESTION marker was among the most effective.
(g) REQUEST - Only three participants 2(R) l(V) felt that this marker was effective. The remainder felt that it could be eliminated and covered adequately by the QUESTION and RECOMMENDATION markers.

(h) INTENTION - This marker found no use in a VTS application during the test period.

2. (a) Markers were found to be most useful when dealing with persons having a fair to good command of English. Additionally the markers helped breakdown otherwise lengthy communications.

(b) Markers were least useful when:

1. dealing with persons having a poor or very good command of English
2. during communications exchanges which were in response to a question or other prompting communication from the vessel
3. during complex situations in which rapidly unfolding events made it difficult for the MTR to draw on relatively short experience with the marker.

3. There were no system-wide modifications suggested.

4. All participants answered that the ability to "categorize" and intended transmission prior to transmitting would improve with experience and would not prove to be a problem.

5. (a) The biggest advantages to using markers in VTS Communications were stated as:

1. Adds to the "professionalism" of communications by formalizing procedures, cutting down on "fill-in" "run-on" sentences.
2. Clarifies many transmissions for both sender and receiver.
3. Promotes standardizations.
4. Reduces chance of misinterpretation concerning the intent of the transmission.
5. Some markers, eg: RECOMMENDATION, WARNING enhance the authoritative tone of some transmissions.

(b) The biggest drawbacks to use of markers in VTS communications were stated as:

1. It is difficult to mentally "switch" markers on and off when communicating with several ships of widely varying linguistic capabilities;
2. Markers sound redundant when speaking with persons fluent in English;
6. There were very few comments on use of markers from anyone other than the participants. One had noted that other VTS personnel had "picked up" the markers and were applying them; another noted that one vessel responded to markers by using them and another stated that when asked, harbour pilots commented that they had noticed a better flow of communications, but couldn't pinpoint the reason for it.

7. On the question of whether to continue use of markers all participants except one said yes; however, some caution was expressed that we not go further into SEASPEAK until it has a wider acceptance among mariners.

8. The range of comments by VTS participants concerning future use of SEASPEAK in VTS follows:

(a) "The SEASPEAK markers have little to do with creating good communications. The markers may add the final touch but the basics must be there first. During our test period the SEASPEAK techniques were used almost exclusively on non-English speaking mariners. I believe that if SEASPEAK is used it should be used "by all, on all". Standardization is important. SEASPEAK, with some changes and lots of practice will bring marine communications a giant step closer to being standard on a global level. It is a start in the right direction." Halifax Traffic.

(b) "I feel that the use of SEASPEAK at this centre would be ineffective as the only real problems encountered during communications with ships occur when the persons onboard do not understand English . . . . and the use of SEASPEAK does not make any appreciable difference in such cases." Halifax Traffic.

(c) "It would be interesting if SEASPEAK was to be used by VTS in Europe and Canada with vessels trading between European and Canadian ports. It would also give SEASPEAK more international recognition. Vessels that used SEASPEAK could then be asked for their input as well." Fundy Traffic.

Conclusion

The conclusions which are drawn from this trial are:

1. The SEASPEAK marker system can, with modifications, be instrumental in improving the effectiveness of Canadian VTS communications.
2. Effectiveness enhanced by use of SEASPEAK markers is most readily apparent in: (1) a more formal communications discipline imposed on VTS staff which simplifies and clarifies communications, and (2) fewer occasions when repeated communications are necessary.

NOTE: although this conclusion is subjective, it is based upon considerable comparison of SEASPEAK used during training sessions and the trial, with VTS communications analyzed during several quality assurance evaluations done prior to SEASPEAK training.

3. SEASPEAK markers can be introduced unilaterally by VTS without concomitant training of shipboard personnel; however, use of other SEASPEAK procedures cannot.

4. Modifications of SEASPEAK markers will be necessary if use in Canada is contemplated; these modifications did not prove to be problematical in the trials. NOTE: The fact that SEASPEAK is relatively unused may have been to the advantage of modifications.

5. SEASPEAK markers seem most effective when the person receiving them has a fair to good comprehension of English. It is least effective when the person receiving has either a poor or very good comprehension.

6. The previous professional background of VTS staff using SEASPEAK markers has no significant relevance to:

(a) their perception of SEASPEAK effectiveness, and
(b) their ability to use SEASPEAK markers when regulating traffic movement.

7. SEASPEAK markers, if followed by standardized procedural phrases, have the potential to improve VTS communications internationally.
LIST OF VTS PARTICIPANTS

Halifax Traffic:

- Kathleen A Flemming
- Donald A Hatcher
- Gary M Outhouse
- C Emery Pettigrove
- Cyril C Ruth
- Howard R Vallis

Fundy Traffic:

- William L Kerwin
- Richard K Power
- Ronald J Snow
- John R Stamp
- Wayne W White

CCG Maritimes
Regional Headquarters

Robert C Shaw
APPENDIX 9

Members of Task Group 7/10 of COST (Concertation of Shipping and Transport) 301 of the EEC

<table>
<thead>
<tr>
<th>Name</th>
<th>Role/Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captain F F Weeks</td>
<td>Task Leader</td>
</tr>
<tr>
<td>Mr N F Matthews</td>
<td>Deputy Secretary-General, International Association of Light House Authorities (IALA)</td>
</tr>
<tr>
<td>Mr L R H Ribadeau-Dumas</td>
<td>French Government</td>
</tr>
<tr>
<td>Captain G De Blende</td>
<td>Secretary-General, European Maritime Pilots Association (EMPA)</td>
</tr>
<tr>
<td>Mr G Trant</td>
<td>Republic of Ireland Government</td>
</tr>
<tr>
<td>Commandant R Sicard</td>
<td>Commandant de Port, Marseille</td>
</tr>
<tr>
<td>Captain S Galleano</td>
<td>President, EMPA</td>
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<tr>
<td>Captain P J Mullan</td>
<td>Harbour Master, Cork</td>
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<td>Captain J Koole</td>
<td>Netherlands Government</td>
</tr>
<tr>
<td>Mr. M A Calder</td>
<td>International Chamber of Shipping (ICS)</td>
</tr>
<tr>
<td>Mr M C Willemse</td>
<td>Netherlands Government</td>
</tr>
</tbody>
</table>
2. STANDARD REPORTING FORMAT AND PROCEDURES

Sections of the ship reporting format which are inappropriate should be omitted from the report.

Where language difficulties may exist, the languages used should include English, using where possible the Standard Marine Navigational Vocabulary. Alternatively, the International Code of Signals should be used to send detailed information. When the International Code is used the appropriate indicator should be inserted after the alphabetical index in the text.

For route information latitude and longitude should be given for each turn point, expressed as in C below, together with type of intended track between these points, for example "RL" (rhumb line), "GC" (great circle) or "coastal", or in the case of coastal sailing the estimated date and time of passing significant points expressed by a 6 digit group as in B below.

<table>
<thead>
<tr>
<th>TELEGRAPHY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of system (eg AMVER/ AUSREP/MAREP/ ECAREG/JASREP)</td>
</tr>
<tr>
<td>TELEPHONE (alternative)</td>
</tr>
<tr>
<td>Name of system (eg AMVER/ AUSREP/MAREP/ ECAREG/JASREP)</td>
</tr>
<tr>
<td>FUNCTION</td>
</tr>
<tr>
<td>System identifier</td>
</tr>
<tr>
<td>INFORMATION REQUIRED</td>
</tr>
<tr>
<td>Ship reporting system or nearest appropriate coast radio station</td>
</tr>
<tr>
<td>State in full</td>
</tr>
<tr>
<td>Type of report</td>
</tr>
<tr>
<td>INFORMATION REQUIRED</td>
</tr>
<tr>
<td>Type of report</td>
</tr>
<tr>
<td>SP</td>
</tr>
<tr>
<td>PR</td>
</tr>
<tr>
<td>DR</td>
</tr>
<tr>
<td>FR</td>
</tr>
<tr>
<td>DG</td>
</tr>
<tr>
<td>HS</td>
</tr>
<tr>
<td>MP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TELEPHONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of system (eg AMVER/ AUSREP/MAREP/ ECAREG/JASREP)</td>
</tr>
<tr>
<td>Name of system (eg AMVER/ AUSREP/MAREP/ ECAREG/JASREP)</td>
</tr>
<tr>
<td>TELEPHONE (alternative)</td>
</tr>
<tr>
<td>State in full</td>
</tr>
<tr>
<td>Type of report</td>
</tr>
<tr>
<td>INFORMATION REQUIRED</td>
</tr>
<tr>
<td>Type of report</td>
</tr>
<tr>
<td>SP</td>
</tr>
<tr>
<td>Sailing plan</td>
</tr>
<tr>
<td>PR</td>
</tr>
<tr>
<td>Position report</td>
</tr>
<tr>
<td>DR</td>
</tr>
<tr>
<td>Deviation report</td>
</tr>
<tr>
<td>FR</td>
</tr>
<tr>
<td>Final report</td>
</tr>
<tr>
<td>DG</td>
</tr>
<tr>
<td>Dangerous goods report</td>
</tr>
<tr>
<td>HS</td>
</tr>
<tr>
<td>Harmful substances report</td>
</tr>
<tr>
<td>MP</td>
</tr>
<tr>
<td>Marine pollutants report</td>
</tr>
</tbody>
</table>
## TELEGRAPHY | TELEPHONE (alternative) | FUNCTION | INFORMATION REQUIRED
--- | --- | --- | ---
Give in full | | | Any other report
A | Ship (alpha) | Ship | Name, call sign or ship station identify and flag
B | Time (bravo) | Date and time of event | A 6 digit group giving day of month (first two digits), hours and minutes (last four digits). If other than UTC state time zone used
C | Position (charlie) | Position | A 4 digit group giving latitude in degrees and minutes suffixed with N (north) or S (south) and a 5 digit group giving longitude in degrees and minutes suffixed with E (east) or W (west); or True bearing (first 3 digits) and distance (state distance) in nautical miles from a clearly identified landmark (state landmark)
D | Position (delta) | Position | A 3 digit group
E | Course (echo) | True course | 
F | Speed (foxtrot) | Speed in knots & tenths of knots | A 3 digit group
G | Departed (golf) | Port of departure | Name of last port of call
H | Entry (hotel) | Date, time and point of entry into system | Entry time expressed as in (B) and entry position expressed as in (C) or (D)
<table>
<thead>
<tr>
<th>TELEGRAPHY</th>
<th>TELEPHONE (alternative)</th>
<th>FUNCTION</th>
<th>INFORMATION REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Destination and Ee-Tee-Ay (India)</td>
<td>Destination and expected time of arrival</td>
<td>Name of port and date of arrival time group expressed as in (B)</td>
</tr>
<tr>
<td>J</td>
<td>Pilot (juliet)</td>
<td>Pilot</td>
<td>State whether a deep sea or local pilot is on board</td>
</tr>
<tr>
<td>K</td>
<td>Exit (kilo)</td>
<td>Date, time and point of exit from system</td>
<td>Exit time expressed as in (B) and exit position expressed as in (C) or (D)</td>
</tr>
<tr>
<td>L</td>
<td>Route (lima)</td>
<td>Route information</td>
<td>Intended track</td>
</tr>
<tr>
<td>M</td>
<td>Radiocommunications (mike)</td>
<td>Radiocommunications</td>
<td>State in full names of stations/frequencies guarded</td>
</tr>
<tr>
<td>N</td>
<td>Next report (november)</td>
<td>Time of next report</td>
<td>Date time group expressed as in (B)</td>
</tr>
<tr>
<td>O</td>
<td>Draught (oscar)</td>
<td>Maximum present static draught in metres</td>
<td>4 digit group giving metres and centimetres</td>
</tr>
<tr>
<td>P</td>
<td>Cargo (papa)</td>
<td>Cargo on board</td>
<td>Cargo and brief details of any dangerous cargoes as well as harmful substances and gases that could endanger persons or the environment</td>
</tr>
<tr>
<td>Q</td>
<td>Defect, damage/deficiency, limitations (quebec)</td>
<td>Defects/damage/deficiencies/other limitations</td>
<td>Brief details of defects, damage, deficiencies or other limitations</td>
</tr>
<tr>
<td>R</td>
<td>Pollution/dangerous goods lost overboard (romeo)</td>
<td>Description of pollution or dangerous goods lost overboard</td>
<td>Brief details of type of pollution (oil, chemicals etc) or dangerous goods lost overboard; position expressed as in (C) or (D)</td>
</tr>
<tr>
<td>TELEGRAPHY</td>
<td>TELEPHONE (alternative)</td>
<td>FUNCTION</td>
<td>INFORMATION REQUIRED</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------</td>
<td>----------</td>
<td>----------------------</td>
</tr>
<tr>
<td>S</td>
<td>Weather (sierra)</td>
<td>Weather conditions</td>
<td>Brief details of weather and sea conditions prevailing</td>
</tr>
<tr>
<td>T</td>
<td>Agent (tango)</td>
<td>Ship's representative and/or owner</td>
<td>Details of name and particulars of ship's representative and/or owner for provision of information</td>
</tr>
<tr>
<td>U</td>
<td>Size and type (uniform)</td>
<td>Ship size and type</td>
<td>Details of length, breadth, tonnage and type etc as required</td>
</tr>
<tr>
<td>V</td>
<td>Medic (victor)</td>
<td>Medical personnel</td>
<td>Doctor physician's assistant, nurse, no-medic</td>
</tr>
<tr>
<td>W</td>
<td>Persons (whiskey)</td>
<td>Total number of persons on board</td>
<td>State number</td>
</tr>
<tr>
<td>X</td>
<td>Remarks (xray)</td>
<td>Miscellaneous</td>
<td>Any other information including as appropriate brief details of incident and of other ships involved either in incident, assistance or salvage</td>
</tr>
</tbody>
</table>
OUTLINE DIAGRAM OF A BROADCAST

STATION MAKING THE BROADCAST
(CONTROLLING STATION)

1

INITIAL CALL
ADDRESS AND IDENTIFY
INDICATE CONTENT OF BROADCAST
ADVISE VHF CHANNEL OF BROADCAST OVER

IS THE BROADCAST FOR YOU?
IS IT OF INTEREST TO YOU?
IF SO, SWITCH TO WORKING VHF CHANNEL AND LISTEN

2

SWITCH OVER
STATION MAKING BROADCAST ListENS ON CALLING CHANNEL,
THEN SWITCHES TO WORKING VHF CHANNEL

3

MESSAGE
ADDRESS AND IDENTIFY
INDICATE CONTENT OF BROADCAST
BROADCAST MESSAGE
OUT

RECEIVING STATION LISTEN
TO BROADCASTING THEN RESUME
WATCH ON APPROPRIATE
WATCHKEEPING VHF CHANNEL

4

END PROCEDURE
STATION MAKING BROADCAST LISTENS ON WORKING VHF CHANNEL

BUT

IF YOU HAVE NOT RECEIVED MESSAGE, REQUEST A REPEAT
AT THIS STAGE
# SEASPEAK - List of Standard Phrases

<table>
<thead>
<tr>
<th>Number</th>
<th>Phrase</th>
<th>Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&quot;All ships (in ... area)&quot;</td>
<td>Making and maintaining contact.</td>
</tr>
<tr>
<td>2</td>
<td>Calling ...</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>&quot;How do you read&quot;</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>&quot;I read ... (1-5)&quot;</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>&quot; Interruption.&quot;</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>&quot;Out.&quot;</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>&quot;Over.&quot;</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Stand by on VHF channel ...</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Standing by on VHF channel ...</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Stop transmitting</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>&quot;This is ...&quot;</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Unknown ship ...</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Wait ... minutes.</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Break.</td>
<td>Conversation controls.</td>
</tr>
<tr>
<td>15</td>
<td>&quot;Nothing more.&quot;</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Please acknowledge.</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Please read back.</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Read back</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>&quot;Stay on&quot;</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>&quot;Understood&quot;</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Readback is correct</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Correction</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Mistake</td>
<td>Clarification.</td>
</tr>
<tr>
<td>24</td>
<td>Please speak in full.</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Please speak slowly.</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Please spell ...</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>I spell ...</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Please use SEASPEAK</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>&quot;Say again ...&quot;</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>&quot;I say again ...&quot;</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Final call.</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Message for you.</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Pass your message.</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Reference ...</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Sorry</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>&quot;Thank you&quot;</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>&quot;On VHF channel ...&quot;</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>&quot;Switch to VHF channel ...&quot;</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>&quot;Agree VHF channel ...&quot;</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>&quot;VHF channels ... available.&quot;</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>VHF channels ... unable.</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>&quot;Which VHF channel?&quot;</td>
<td>Channel switching.</td>
</tr>
</tbody>
</table>
APPENDIX 13

Typology of messages

Reports from Ships

General

Message types will vary according to the task in hand, geographical location, type of ship and cargo etc.

Scenarios and messages generated thereby

LONG-RANGE REPORT

General scenario: First message to a 'breakwater Port', with no landfall or Coastal VTS involved.

Detailed scenario:

SHIP: Victoria Prima

SHIPTYPE: Containership 2200 TEU approaching Genova after a voyage through the Suez Canal from New Zealand carrying 1000 TEU meat in refrigerated containers, 1000 TEU general cargo and 2000 kilograms dangerous goods IMO class 4 and 5.

Message generated:

OOW calls Genova on VHF channel 16:

Ship

Genova Port Traffic, Genova Port Traffic. This is Victoria Prima 7AGT Victoria Prima 7AGT on VHF channel one six, over.

GPT

Victoria Prima 7AGT, Victoria Prima 7AGT. This is Genova Port Traffic, Genova Port Traffic. Switch to VHF channel one one, over.

Ship

Genova Port Traffic. This is Victoria Prima, agree VHF channel one one, over.

GPT

Victoria Prima, Victoria Prima. This is Genova Port Traffic. Request: Long Range Report Items Alpha through Papa.

Ship

Genova Port Traffic. This is Victoria Prima. Answer: Long Range Report:

A  Alpha  Victoria Prima
B  Bravo  04.25 UTC
C  Delta  240 degrees Genova No 1 pier, distance 30 miles
E  Echo  060 degrees
LONG-RANGE REPORT

General scenario: First message to a Landfall VTS, to be followed by a voyage up the English Channel to the Port of Felixstowe (England).

Detailed scenario: The container ship CMB Europe, call sign ONDA is on voyage from Montreal, Canada to Felixstowe, England with a general cargo including:

- IMDG Code 2: 2950 kilos
- IMDG Code 3: 84711 kilos
- IMDG Code 6: 7111 kilos
- IMDG Code 7: 48000 kilos
- IMDG Code 8: 145405 kilos
- IMDG Code 9: 272 kilos

Ships draft is 9.10 metres forward 9.25 metres aft, and she plans to follow the inshore traffic zone. Her ETA Felixstowe is Day 6 at 13.00 UTC and her ETA Sunk Pilot at 11.00 UTC. She has no doctor and 26 total complement. Present course 093, speed 16.9 knots. ETA Bishop Rock Day 5 at 03.30 UTC, leaving area at 05.00 UTC. Next report will be made on Day 5 at 11.00 UTC.

Message generated:

Dover Coastguard from CMB Europe
A Alpha CMB Europe - ONDA
B Bravo 05 01 00 Z
C Charlie 4842 N 0702 W
D Echo 093
E Foxtrot 169

262
G Golf Montreal
H Hotel 05 03 30 Z
I India Felixstowe 06 13 00 Z
J Juliet Pilot Sunk 06 11 00 Z
K Kilo 05 05 00 Z
L Lima RL-076-BEACHY HEAD-INSHORE TRAFFIC ZONE
M Mike VHF Ch 16 - GNI 500 KCS
N November 05 11 00 Z
O Oscar FWD 9.10 AFT 9.25
P Papa General in containers - Dangerous cargo stowed as per IMDG Code

Class 1 Nil
2 2950 Kilos
3 84711 kilos
4 Nil
5 Nil
6 7111 kilos
7 480000 kilos
8 145405 kilos
9 272 kilos

V Victor No Medic
W Whiskey 26
X Xray Nil

LONG-RANGE REPORT

General scenario: Message to a Through Traffic VTS Centre, which, because of a lack of communication between Landfall VTS and Through Traffic VTS, is acting as a Landfall VTS.

Detailed scenario: Ship details are as for previous item.

Ship's position is 167° from Royal Sovereign Light distance 3.6 miles. Ship also reports status of hull and equipment, as frequently required by a Coastal State.

Message generated:

Dover Coastguard from CMB Europe
A Alpha CMB Europe ONDA
B Bravo 05 1835 UTC
D Delta 167 Royal Sovereign 3.6 miles
E Echo 077
F Foxtrot 160
G Golf Montreal Canada
H Hotel 05 1900 UTC
I India Felixstowe 07 0100 L
J Juliet Sunk anchorage 06 0200 L
K Kilo South Goodwin 05 2200 L
L Lima Inshore Traffic

263
M Mike  GNF  GNF
N November  05 1900 L
O Oscar  FWD 8.56 AFT 8.74
P Papa  General in containers 14572 Tons Gross
        Dangerous cargo stowed as per IMDG Code
        Class 1  Nil
        2  2950 Kilos
        3  84711 kilos
        4  Nil
        5  Nil
        6  7111 kilos
        7  48000 kilos
        8  145405 kilos
        9  272 kilos

        Heavy fuel 960TS  Diesel oil 148TS  Gasoil
        8TS  Waterballast 2704TS

Q Quebec  No defects damages deficiencies or other
          limitations
R Romeo  No pollution incidents
S Sierra  Wind SWLY 5 Beaufort
T Tango  Furness Withy Agencies Felixstowe
U Uniform  Full cellular container vessel
          Length 231.5 M
          Breadth 30.5 M
          Tonnage 30491 Gross
          Gross 13191 Net
V Victor  No Medic
W Whiskey  26
X Xray  Nil

INTERMEDIATE REPORT

General scenario: Message to a Through Traffic VTS Centre which has
already received a Long Range Report via a Landfall VTS Centre or
direct (see previous item).

Detailed scenario: Ship details as for previous item.

The CMB Europe has adjusted her speed, and this affects her ETA off
Dover. To assist the VTS operators there she uses an Intermediate
report to announce her new ETA.

Message generated:

Dover Coastguard from CMB Europe.
Intermediate Report.

I India  ETA Dover 05 1900 UTC
**MOVEMENT REPORT**

General scenario: Message to a Through Traffic VTS Centre from a ship already within the system, and reporting arrival at a chosen Waypoint.

Detailed scenario: The ship Christina is inward bound to Hamburg, and already has a Pilot embarked. She is in a position with Elbe Light Vessel bearing 360°, distance 2 miles, at Waypoint Number 11. Her course is 095°, her speed 15 knots.

Message generated:

Deutsch Bucht Revier Radio from Christina
Movement Report:

A Alpha Christina
B Bravo 31 23 05 UTC
C Charlie Waypoint Number 11 Bearing 180 degrees from Elbe Light Vessel distance 2 miles
E Echo 095 degrees
F Foxtrot 15 knots

**PRE-ENTRY REPORT**

General scenario: Message to a Pilot Station, acting under the overall Radar cover of a VTS system, to confirm the ship's ETA at the Pilot station and other essential details.

Note: When acting outside a VTS the details required by the Pilot Station may be more extensive, perhaps to the complexity of the Long Range Report.

Detailed Scenario: The ship Gaynor W is approaching the Wandelaar Pilot Station from the South West. Her ETA at the Pilot Station is in two hours. She confirms that she requires a Pilot and her destination is Zandvlietsluis. Her main details have already been transmitted via Ostend Radio.

Message generated:

Wandelaar Pilot Station from Gaynor W

A Alpha Gaynor W
B Bravo 06 06 15 UTC
I India Zandvlietsluis
J Juliet Pilot required at Wandelaar. ETA 06 08 10
L Lima Approaching from South West

265
ENTRY REPORT

General scenario: Message to a Vessel Traffic Centre notifying that centre that the ship has entered the VTS area.

Detailed scenario: The ship Gaynor W is approaching the Port of Gothenburg from the West. Her present position is bearing 260° distance 7 miles from Vinga Island, and she is entering the VTS area at boundary sector E.

Message generated:

Gothenburg Traffic from Gaynor W
Entry Report

A Alpha Gaynor W
B Bravo 15 15 20 UTC
H Hotel 15 15 25 UTC
Boundary sector Echo

FINAL REPORT

General scenario: Message to a Vessel Traffic Centre notifying that centre that the ship has left the VTS area for inland waters.

Detailed scenario: The container ship Sierra Express has completed a voyage inwards to the Port of Antwerp, and has made fast in the Zandvlietsluis prior to entering the locked harbour. She gives her final report to Zandvliet VTS Centre.

Message generated:

Zandvliet Traffic from Sierra Express
Final Report

A Alpha Sierra Express
B Bravo 19 07 30 local
K Kilo 19 07 20 local Boundary point Zandvlietsluis

FINAL REPORT

General scenario: Message to a VTS Centre notifying that centre that the ship is made fast in her berth.

Detailed scenario: The tanker Sarah W has completed her voyage inwards to the Port of Hamburg, and is all fast in berth 3 at the Petroleumhafen.
Message generated:

Hamburg Port Traffic from Sarah W
Final Report

A  Alpha  Sarah W
B  Bravo  09 23 00 local
K  Kilo   09 22 50 local. All fast in Berth number 3 Petroleumhafen

PRE-DEPARTURE REPORT

General scenario: Message sent to a VTS Centre notifying that Centre that the ship will be sailing soon.

Detailed scenario: The ship Sarah W has completed discharge of petroleum products cargo at Berth 3 Petroleumhafen, Port of Hamburg and will be ready to sail on completion of bunkers in two hours. Her maximum sailing draft will be 9 metres. She is outwards bound for sea and will require a pilot. She has no deficiencies but is not gas free.

Note: This message may be sent by telephone or other shore-based means.

Message generated:

Hamburg Port Traffic from Sarah W
Pre-departure Report

A  Alpha  Sarah W
B  Bravo  10 17 20 local
C  Charlie Petroleumhafen Berth number 3
H  Hotel  10 19 40
I  India  Outbound
J  Juliet Pilot required
L  Lima  Westbound from Waypoint number 11
O  Oscar  0900
P  Papa  Dirty Ballast
Q  Quebec No deficiencies
X  Xray  Loading bunkers until time: 19 20 local

DEPARTURE REPORT

General scenario: Message sent to a VTS Centre notifying that Centre that the ship is in all respects ready to leave the berth.
Detailed scenario: The ship Vikki W has completed discharge in Antwerp enclosed docks, and has entered Zandvlietsluis locks prior to entering the River Scheldt and departing for sea. She notifies the VTS Centre that she is ready to depart. She asks for clearance.

Message generated:

Zandvlietsluis Traffic from Vikki W
Departure Report

A  Alpha  Vikki W
B  Bravo  26 05 15
C  Charlie  Zandvlietsluis
H  Hotel  26 05 20
I  India  Outbound
J  Juliett  Pilot on board
P  Papa  Ballast
Q  Quebec  No deficiencies
X  Xray  Request clearance

FINAL REPORT (OUTBOUND)

General scenario: Message sent to a VTS Centre notifying that Centre that the ship is leaving the system.

Detailed scenario: Ship Vikki W has cleared Zandvlietsluis and is approaching the boundary of the Terneuzen Radar area, at E7 buoy. Her course is 289°, speed 16 knots, time 09.30 local.

Message generated:

Terneuzen Traffic from Vikki W
Final Report

A  Alpha  Vikki W
B  Bravo  26 09 30 local
K  Kilo  Leaving Terneuzen system. Buoy E7

INFORMATION BROADCASTS

General

Relevance of sections of Information Broadcasts will vary with change of type of VTS.

General scenario: A large VTS Centre combining the functions of a Through Traffic (coastal) VTS and a Port VTS wishes to broadcast a diverse set of information to all ships in the area.
Detailed scenario:

VTS Centre: Chaudron Traffic
Calling: All ships
Time 1200 UTC.


Traffic information:

1. Warning: New ship track letter V VICTOR in the North-East bound lane in position bearing 325 degrees from Chaudron light house at distance of 2.3 miles approximate course 223 degrees speed 16 knots. This course does not comply with Rule 10 of COLREGS.

2. Many yachts are reported in the North-East lane in the vicinity of Chaudron Landfall buoy. A careful lookout is advised.

Vessels with exceptional characteristics: There is a survey vessel working in the South-West bound lane reported in position bearing 300 degrees from Chaudron Lighthouse distance 5.2 miles approximate course 052 degrees speed 2 knots. A wide berth is advised.

Pilotage information: Chaudron Pilot vessel withdrawn from service. Pilot boat will meet inbound ships at inshore pilot station buoy K2.

Message generated:

All ships, all ships this is Chaudron Traffic. Information
Broadcast for 1200 UTC.

A Alpha Securite. Securite. Sunken barge in position bearing 270 degrees from Chaudron Lighthouse distance 2.5 miles.

ADVICE: Keep well clear.


D Delta Predicted high water Chaudron Harbour entrance. Time: 15.20 local. Height: 6.4 metres.
ONE WARNING: New ship track letter V VICTOR in North-east bound lane in position bearing 325 degrees from Chaudron lighthouse distance 2.3 miles, course 223 degrees speed 16 knots. This course does not comply with Rule 10 of COLREGS.

TWO Many yachts are reported in North-East lane in vicinity of Chaudron Landfall buoy.

ADVICE: Keep a careful look-out.

There is a survey vessel working in the South-west bound traffic lane reported in position bearing 300 degrees from Chaudron lighthouse distance 5.2 miles. Course 052 degrees, speed 2 knots.

ADVICE: Keep well clear.

Chaudron Pilot vessel withdrawn from service. Pilot boat will meet inbound ships at inshore pilot station buoy K2.

This is Chaudron Traffic
End of Information Broadcast
Out

General scenario: A small port VTS, handling a small volume of commercial traffic and a large volume of pleasure craft wishes to broadcast information of general interest, and also information keeping each type of traffic informed of movements of other.

Detailed scenario:

VTS Centre: Cartier Traffic
Calling: All ships
Time: 1600 local


Traffic Information:

1. Ferry Isles Normandes will enter 17.30 local

2. Yachts engaged in TRANSAT race will leave Bassin Vauban from 16.00 onwards.

270
Message generated:

All ships, all ships this is Cartier Traffic.
Information broadcast for 16.00 local.


D Delta Predicted high water Mole des Noires 18.00 local, height 10.5 miles.

E Echo ONE Ferry Isles Normandes will enter harbour 17.30 local.

TWO Yachts engaged in TRANSAT race will leave Bassin Vauban 16.00 local.

This is Cartier Traffic
End of Information broadcast
Out

SPECIAL CIRCUMSTANCES

Defects

General scenario: A partly loaded tanker carrying low flash-point cargo is approaching Chaudron. Her inert gas system has failed, and her empty cargo tanks are no longer inerted as required by local regulations.

Detailed scenario: Cargo tanks 4 and 5 centre previous cargo gasoline no longer inerted.

Message Generated:

Chaudron Traffic from Sarah W
Defect

Information: Inert gas system breakdown. Cargo tanks 4 and 5 previous cargo gasoline not inerted
Warning: Vessel does not comply with Chaudron Tanker regulations

Breakdowns

General scenario: Ship Vikki W has an engine breakdown.
Detailed scenario: Vikki W has lost ability to go astern and therefore cannot comply with COLREGS manoeuvring requirements. She therefore cannot comply with requirements of Chaudron VTS. Her position is near buoy N 12, Snake Bend. Later, Chaudron withdraws clearance and advises her to anchor.

Message generated:

Chaudron Traffic from Vikki W
Breakdown

Warning: Position buoy N 12 Snake Bend
Unable to go astern

(later) Response

Vikki W from Chaudron Traffic
Warning received: You are unable to go astern
Information: Clearance withdrawn
Advice: You can anchor until breakdown repaired

Deviations

General scenario: The small vessel Jack W is forced to deviate by stress of weather.

Detailed scenario: Jack W is following the deep water fairway within the jurisdiction of Manche VTS. This fairway is well offshore and Jack W is badly affected by an offshore gale. She is forced to deviate into the inshore shallow draft fairway.

Message generated:

Manche Traffic from Jack W
Deviation

Information: I am deviating
Direction: Towards inshore fairway
Reason: Gales make offshore route dangerous for me

Unusual hazards in the system

General scenario: The Tall Ships Race is commencing at the Port of Gothenburg.

Detailed scenario: The ship Vikki W is approaching Waypoint number 1 near Radar Vasskanen in the Gothenburg Traffic area. Gothenburg Traffic has already broadcast navigational warnings that the Tall Ships race is commencing, but is making sure that Vikki W has received the message.
Message generated:

Vikki W from Gothenburg Traffic

Warning: Tall Ships race will commence Alvsborg Bridge at time 12.00 UTC.
Information: Large numbers small craft in Gothenburg approaches.
Advice: Anchor near present position until time: 16.00UTC

Normal Pilotage Service Suspended

General scenario: VLCC Megagas is picking up a deep sea pilot, and bad weather intervenes.

Detailed scenario: Megagas is approaching Cherbourg Area Helicopter Pilot Service (code name HELIPILHAUT) eastbound for Europort. Severe gales from south prevent the helicopter operating. Jobourg Traffic co-ordinates, and informs ship that Pilot will board by boat north of CH1 buoy in longitude 01° 45' West. Jobourg requests confirmation that message has been received.

Message generated:

Megagas from Jobourg Traffic

Information ONE: Normal Pilotage suspended. Helipilhaut service not operating, reason: gales.
Information TWO: Pilot will board by boat at position: bearing 315° from CH1 buoy distance one mile longitude 01° 45' West.
Please acknowledge.

Reduced Visibility

General scenario: Vikki W is approaching Cuxhaven, where the Elbe Pilot is sheltering.

Detailed scenario: Vikki W arrives off the Elbe Light Vessel in bad weather with poor visibility, and is informed that the Pilot vessel is sheltering at Cuxhaven, where the Pilot will board. Cuxhaven Traffic informs Vikki W of the situation and offers Radar Assistance.

Message generated:

Vikki W from Cuxhaven Revier Traffic

Information ONE: Normal Pilotage suspended. Elbe Pilot Vessel on station at Cuxhaven.
Reason: severe gales.
Information TWO: Visibility in Elbe approaches 100 metres. Fairway closed at Grosser Vogelsand to vessel not using Radar Assistance to Navigation.

Question: Do you want Radar Assistance to Navigation.

Deep Draught

General scenario: Megagas, partly loaded, is approaching the River Thames, on maximum permissable draft.

Detailed scenario: Megagas is making her initial call to Gravesend Traffic. Her draft is 12.7 metres, and her position is close to Sunk Head Tower. Local rules dictate that Megagas must initially give her ETA at Black Deep No 5 Buoy, Black Deep No 11 buoy and Knock John No 7 Buoy. This group of ETAs is collectively known as her 'programme'. Gravesend Traffic requests this.

Message generated:

Gravesend Traffic from Megagas

Gravesend Traffic, this is Megagas
Deep Draft
D Delta Sunk Head Tower
O Oscar 12.7 metres
Over

Response:

Megagas, this is Gravesend Traffic

Information-received: Your present position is Sunk Head Tower, your draft is 12.7 metres.
Question: What is your programme?
Over

Vessels Restricted in their ability to manoeuvre

General scenario: The tug Kelly is entering Chaudron with a difficult tow.

Detailed scenario: Tug Kelly has the drilling rig Itinerant Driller in tow, and is manoeuvring with difficulty. She requires to enter Chaudron, where Itinerant Drill will have a refit. She is making 3 knots only, and will occupy the fairway for 2 hours. Chaudron responds by refusing clearance until extra tugs can arrive and a clear fairway can be arranged.

274
Message generated:

Chaudron Traffic, this is Kelly

Information: I am restricted in my ability to manoeuvre
Reason: Drilling rig Itinerant Driller in tow
Information: Maximum speed 3 knots
Over

Response

Kelly, this is Chaudron Traffic

Information received: You are restricted in your ability to manoeuvre and you have Itinerant Driller in tow
Instruction: Do not enter
Advice: Wait for tugs Donner and Blitzen
Information: Expected delay period: Two hours

Small Craft

General scenario: The yacht Happy Daze is approaching the Hamble River from USA.

Detailed scenario: Happy Daze is unsure of the correct procedure to enter the Hamble River, and calls Southampton Port Traffic to report her presence.

Message generated:

Southampton Port Traffic, this is Happy Daze from USA
Length: 14 metres
Destination: Hamble River
Over

Response

Happy Daze, this is Southampton Port Traffic

Information received: Length 14 metres, destination Hamble River, from USA
Information: You are cleared to enter
Information: Large vessel outbound at time 1400 local
Advice: Keep clear of main fairway when large vessel in transit
Over
Radar Assistance to Navigation

Clearances

General scenario: Gaynor W is singled up and ready to leave her berth at Chaudron.

Detailed scenario: Gaynor W has her Pilot on board and is ready in all respects to sail for sea. There is a bend in the river only 500 metres from her berth, where approaching ships are hidden by high buildings. The VTS can issue information to the ship as to whether the fairway is clear, or not. Chaudron responds with clearance.

Message generated:

Chaudron Port Traffic, this is Gaynor W
Information: Ready to sail
Request: Clearance
Over

Response

Gaynor W, this is Chaudron Port Traffic
Information: You are cleared to sail. Fairway at Snake Bend is clear.

The following are examples of radar assistance to navigation:

- "Gaynor W, this is Chaudron Port Traffic
  Information: Your position Waypoint number 5, distance 100 metres, Red from reference line 089"

- "Gaynor W, this is Chaudron Port Traffic
  Information: Position buoy number 7, distance 200 metres, Red from reference line 167. Track closing (or track diverging) reference line."

- "Gaynor W, this is Chaudron Port Traffic
  Information: You are approaching starboard limit of deep water fairway."
APPENDIX 14
PRE-DEPARTURE REPORT CONTENTS

Sections of the Report format which are inappropriate should be omitted.

<table>
<thead>
<tr>
<th>CODE LETTER</th>
<th>SPOKEN AS</th>
<th>INFORMATION REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Departure Report</td>
<td>(Title of Report)</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>alpha</td>
<td>Ship: name and call sign of ship</td>
</tr>
<tr>
<td>B</td>
<td>bravo</td>
<td>Date and time of this message in local time. A six digit group giving date of month (first two digits), hours and minutes (last four digits) followed by the word LOCAL.</td>
</tr>
<tr>
<td>C</td>
<td>charlie</td>
<td>Position: name or number of current berth.</td>
</tr>
<tr>
<td>H</td>
<td>hotel</td>
<td>ETD as expressed at bravo</td>
</tr>
<tr>
<td>I</td>
<td>india</td>
<td>Destination (which may be another berth or place inside the VTS area).</td>
</tr>
<tr>
<td>J</td>
<td>juliet</td>
<td>Pilot: state pilot requirements for the movement.</td>
</tr>
<tr>
<td>L</td>
<td>lima</td>
<td>Route information: intended route over which the movement will be conducted.</td>
</tr>
<tr>
<td>O</td>
<td>oscar</td>
<td>Maximum present static draught in metres: 4 digit group giving metres and centimetres</td>
</tr>
<tr>
<td>P</td>
<td>papa</td>
<td>Cargo/Ballast</td>
</tr>
<tr>
<td>Q</td>
<td>quebec</td>
<td>Defects, damage, deficiencies, other limitations: Brief details of defects, damage, deficiencies or other limitations including any defects in inert gas systems (if appropriate).</td>
</tr>
<tr>
<td>X</td>
<td>x-ray</td>
<td>Miscellaneous eg: still loading bunkers.</td>
</tr>
</tbody>
</table>
RESTRICTED TRIALS

Shipboard Log

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Please enter suggestions, if any, on the back of the sheet.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>SUBJECT</th>
<th>DOES IT WORK</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.3</td>
<td>Standard Call Name</td>
<td></td>
</tr>
<tr>
<td>4.4</td>
<td>Times</td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td>ETA Points</td>
<td></td>
</tr>
<tr>
<td>4.6</td>
<td>Common Language</td>
<td></td>
</tr>
<tr>
<td>4.8.1</td>
<td>Communications items</td>
<td></td>
</tr>
<tr>
<td>4.8.2</td>
<td>Pre-entry Report</td>
<td></td>
</tr>
<tr>
<td>ITEM</td>
<td>SUBJECT</td>
<td>DOES IT WORK</td>
</tr>
<tr>
<td>--------</td>
<td>----------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>4.8.2</td>
<td>Entry Report</td>
<td></td>
</tr>
<tr>
<td>4.8.4</td>
<td>Pilot Arrangements</td>
<td></td>
</tr>
<tr>
<td>4.8.5</td>
<td>Movement Reports</td>
<td></td>
</tr>
<tr>
<td>4.8.6</td>
<td>Leaving the system Reports (inbound)</td>
<td></td>
</tr>
<tr>
<td>4.8.7</td>
<td>Pre-departure Report</td>
<td></td>
</tr>
<tr>
<td>4.8.8</td>
<td>Departure Report</td>
<td></td>
</tr>
<tr>
<td>4.8.9</td>
<td>Leaving system Report (outbound)</td>
<td></td>
</tr>
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<td>4.8.10</td>
<td>Information Service</td>
<td></td>
</tr>
<tr>
<td>4.8.10.6</td>
<td>Regularity of Broadcasts</td>
<td></td>
</tr>
<tr>
<td>4.10</td>
<td>Assistance to Navigation</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 16

COST 301

TASK GROUP 7/10

RESTRICTED TRIALS

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<table>
<thead>
<tr>
<th>ITEM</th>
<th>SUBJECT</th>
<th>DO YOU USE IT?</th>
<th>DOES IT WORK</th>
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<td>NO</td>
</tr>
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<td>4.3</td>
<td>Standard Call Name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4</td>
<td>Times</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td>ETA Points</td>
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<td></td>
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<td>4.6</td>
<td>Common Language</td>
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<td>4.8.1</td>
<td>Communications Items</td>
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<td></td>
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<td>Pre-entry Report</td>
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<td></td>
</tr>
<tr>
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<td>SUBJECT</td>
<td>DO YOU USE IT?</td>
<td>DOES IT WORK</td>
</tr>
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<td>----------------------------------</td>
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<td>NO</td>
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<tr>
<td>4.8.2</td>
<td>Entry Report</td>
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<td></td>
</tr>
<tr>
<td>4.8.4</td>
<td>Pilot Arrangements</td>
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<td></td>
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<td>Movement Reports</td>
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<td>Leaving the system Reports (inbound)</td>
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<tr>
<td>4.8.7</td>
<td>Pre-departure Report</td>
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<td>Departure Report</td>
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<td></td>
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<tr>
<td>4.8.9</td>
<td>Leaving system Report (outbound)</td>
<td></td>
<td></td>
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<td>Information Service</td>
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<td>Regularity of Broadcasts</td>
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<td>Assistance to Navigation</td>
<td></td>
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<td>ITEM</td>
<td>SUBJECT</td>
<td>DO YOU USE IT?</td>
<td>DOES IT WORK</td>
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<td>Clearances</td>
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## RESTRICTED TRIALS ANALYSIS: MARSEILLE

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<thead>
<tr>
<th>ITEM</th>
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<th>DO YOU USE IT? MARSEILLE</th>
<th>TOTAL USE</th>
<th>DOES IT WORK? FOS: YES</th>
<th>DOES IT WORK? MARSEILLE: YES</th>
<th>TOTAL YES</th>
<th>SUCCESS</th>
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<td>201</td>
<td>448</td>
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<td>226</td>
<td>247</td>
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<td>212</td>
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<td>277</td>
<td>170</td>
<td>477</td>
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<td>141</td>
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<td>118</td>
<td>55.4%</td>
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<tr>
<td>8.10</td>
<td>292</td>
<td>11</td>
<td>303</td>
<td>224</td>
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<td>226</td>
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<td>8.10.6</td>
<td>187</td>
<td>-</td>
<td>187</td>
<td>39</td>
<td>-</td>
<td>39</td>
<td>20.9%</td>
</tr>
<tr>
<td>10</td>
<td>209</td>
<td>4</td>
<td>213</td>
<td>39</td>
<td>1</td>
<td>40</td>
<td>18.8%</td>
</tr>
<tr>
<td>11</td>
<td>244</td>
<td>-</td>
<td>244</td>
<td>79</td>
<td>-</td>
<td>79</td>
<td>32.4%</td>
</tr>
<tr>
<td>11.1</td>
<td>231</td>
<td>-</td>
<td>231</td>
<td>62</td>
<td>-</td>
<td>62</td>
<td>26.8%</td>
</tr>
<tr>
<td>11.6</td>
<td>323</td>
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<tr>
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<td>267</td>
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<td>57</td>
<td>21.3%</td>
</tr>
<tr>
<td>11.9</td>
<td>227</td>
<td>-</td>
<td>267</td>
<td>37</td>
<td>-</td>
<td>37</td>
<td>16.3%</td>
</tr>
</tbody>
</table>

Example:

Used 686 times and it worked 624 times or 90.1% of users were successful in its use.
APPENDIX 18  (INDIVIDUAL COMPLETED SHIP LOG, MARSEILLE TRIAL)

COST 301

TASK GROUP 7/10

RESTRICTED TRIALS

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<table>
<thead>
<tr>
<th>ITEM</th>
<th>SUBJECT</th>
<th>DOES IT WORK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>4.3</td>
<td>Standard Call Name</td>
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<td>ITEM</td>
<td>SUBJECT</td>
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</tr>
<tr>
<td>------</td>
<td>--------------------------------------------------</td>
<td>--------------</td>
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<td>ITEM</td>
<td>SUBJECT</td>
<td>DOES IT WORK</td>
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<tr>
<td>------</td>
<td>---------</td>
<td>--------------</td>
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<td>Enquiring whether clearance is necessary</td>
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<tr>
<td>4.11.9</td>
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I filled the items and by my ship according with my knowledge.

Faithfully yours.

Cdr K. Hamzagui
CAPITAINE
C/F Habib

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APPENDIX 19

Harmonised VTS Communication Procedures adapted for use at Cork

PORT: VTS Harmonization of Communication Procedures

1.1 Introduction

These procedures should be followed by vessels using the Port of Cork.

The procedures are being used for a limited period on a trial basis by selected ships.

1.2 STANDARD CALL NAME:

The standard call name for the Port VTS will be the name of the station followed by the words 'PORT TRAFFIC' i.e.:

CORK PORT TRAFFIC.

1.2 TIMES

1.3.1 Times relating to events occurring inside the seaward boundary of the VTS Area should be given in Local Time.

1.3.2 If there is any doubt as to what the correct local time to use then it is suggested that elapsed time should be used. E.g.: "I will arrive at ETA Point after Period thirty minutes".

1.4 ETA Point

The ETA point is defined as the limits of the port of Cork i.e.: a line drawn between Power Head and Cork Head.

1.4.1 The name of the ETA point should be given with the ETA e.g.: "ETA port limits, time ONE-SIX-THREE-ZERO; GMT or LT.

1.5 COMMON LANGUAGE

The language used for communications will be English.

1.6 VHF CHANNEL Discipline

1.6.1 Improper use of VHF channels may endanger the safety of vessels moving inside the VTS system particularly in cases of reduced visibility.

1.6.2 VTS VHF stations are not usually available for the handling of commercial communications (such as telephone calls). These are normally routed through a coast radio station.

1.6.3 Initial calls to the Port VTS should be made on the Port VTS working frequency, i.e. either channel 12 or 14. Channel 12 is the primary working frequency.
1.6.4 Except in cases of emergency, VHF channel 16 should not be used for calling within Port VTS.

1.6.5 All communications on VTS VHF working channels should be in accordance with ITU Rules.

1.7 **COMMUNICATIONS**

1.7.1 Communications required in a straight forward transit of the Port VTS are as follows:

1. PRE-ENTRY REPORT
2. ENTRY REPORT
3. PILOT ARRANGEMENTS
4. LEAVING THE SYSTEM REPORT (INBOUND)
5. FINAL REPORT
6. PRE-DEPARTURE REPORT
7. DEPARTURE REPORT
8. LEAVING THE SYSTEM REPORT (OUTBOUND)

1.7.2 **PRE-ENTRY REPORT**

This may be the first report transmitted direct to the VTS Centre. The pre-entry report should be given at least two hours before expected arrival at the VTS boundary.

1.7.2.1 The pre-entry report should be structured as follows:

<table>
<thead>
<tr>
<th>CODE</th>
<th>SPOKEN AS</th>
<th>INFORMATION REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>ALPHA</td>
<td>SHIP: NAME AND CALL SIGN</td>
</tr>
<tr>
<td>B</td>
<td>BRAVO</td>
<td>EXPECTED TIME OF ARRIVAL AT DEFINED ETA POINT</td>
</tr>
<tr>
<td>C</td>
<td>CHARLIE</td>
<td>PILOT: STATE PILOT REQUIREMENTS AT VTS DESTINATION NOTE: PILOTS WILL BOARD VESSELS OUTSIDE ROCHE'S POINT WHEN REQUIRED WEATHER PERMITTING, OR AT ANY POINT BETWEEN THE HARBOUR ENTRANCE AND THE COMPULSORY LIMITS. (SPIT BANK LIGHTHOUSE)</td>
</tr>
<tr>
<td>D</td>
<td>DELTA</td>
<td>MAXIMUM PRESENT STATIC DRAFT IN METRES</td>
</tr>
<tr>
<td>E</td>
<td>ECHO</td>
<td>DIRECTION OF APPROACH</td>
</tr>
</tbody>
</table>

In addition to the above, The Merchant Shipping Entry requirement for Tanker Regulations 1981 apply to any tanker of 1,600 grt and over, of whatever flag, the required information must be communicated in the pre-entry report.
1.7.2.2 Response: The VTS centre will respond by acknowledging the report.

1.7.2.3 At first contact with the ship, the VTS centre should give all necessary and/or urgent information likely to affect the navigation of the ship.

1.7.3 **ENTRY REPORT**

The entry report should be made as close as possible to the time the vessel crossed the VTS boundary ie: the port limits.

If there is a delay due, for example, to the VTS centre being engaged in an exchange with another vessel then the time at which the vessel crossed the VTS area boundary should be included in this message. This principle (the timing of events) should be adopted throughout the VTS system.

Example:

"Cork Port Traffic this is Gaynor W  
Entry Report  
Passing VTS Boundary  
Time 1635 Local  
Over"

1.7.4 **Pilot Arrangement**

1.7.4.1 Pilot arrangements refer to the close quarter communications between the ship and the pilot vessel.

1.7.4.2 The pilot vessel keeps watch on the VTS working channel ie: Channel 12. The pilot will communicate with the vessel on this channel.

1.7.5 **LEAVING THE SYSTEM REPORTS (INBOUND)**

To be given when the vessel leaves the system by making fast in berth.

1.7.5.1 The purpose of these reports is to confirm to the VTS operator that the vessel is no longer participating in the system.

1.7.5.2 The report should be

- name
- type of report (The words FINAL REPORT)
- BERTH NAME

Example:

"Cork Port Traffic this is Gaynor W  
Final Report  
all fast in South Jetties  
Over"
1.7.6  Pre-departure Report

1.7.6.1 This message is sent by a vessel berthed inside a port VTS area, prior to making preparations to leave the berth, usually by telephone or VHF.

1.7.6.2 The purpose of the Pre-departure Report is to enable the port and pilotage services to plan the necessary arrangements for the vessel's movement, eg: pilot, linesmen.

1.7.6.3 The Pre-departure Report is to be sent to the Port Office or VTS Centre two hours prior to the Estimated Time of Departure (ETD) from the berth.

1.7.6.4 In the event of the vessel's stay in the berth being of less than twelve hours duration the Pre-departure Report must be sent at the earliest opportunity.

1.7.6.5 In some ports there will be a minimum period of warning required before a vessel is permitted to commence a movement. This period will vary, dependant on the physical layout of the port, the position of the pilot station, the number of tugs and line handling gangs available etc. The length of the minimum period of warning required will be found in the regulations applicable to the individual port.

1.7.6.6 If a vessel does not observe the minimum period of warning when sending a Pre-departure Report she may, depending on the circumstances prevailing in the port, be required to wait in the berth until the minimum period of warning has expired.

1.7.6.7 In the case of regular trades, such as ferries, which operate to a fixed schedule, the Pre-departure Report requirements may be handled by the owners or agents by providing the port office with a copy of their schedule.

1.7.6.8 The Pre-departure Report should contain the information below which is laid out in accordance with IMO guidelines for ship reporting systems.
**PRE-DEPARTURE REPORT CONTENTS**

Sections of the Report format which are inappropriate should be omitted.

<table>
<thead>
<tr>
<th>CODE LETTER</th>
<th>SPOKEN AS</th>
<th>INFORMATION REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Departure Report</td>
<td>(Title of Report)</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>alpha</td>
<td>Ship: name</td>
</tr>
<tr>
<td>B</td>
<td>bravo</td>
<td>Date and time of this message in local time. A six digit group giving date of month (first two digits), hours and minutes (last four digits) followed by the word LOCAL.</td>
</tr>
<tr>
<td>C</td>
<td>charlie</td>
<td>Position: name or number of current berth.</td>
</tr>
<tr>
<td>H</td>
<td>hotel</td>
<td>ETD as expressed at bravo</td>
</tr>
<tr>
<td>I</td>
<td>india</td>
<td>Destination (which may be another berth or place inside the VTS area).</td>
</tr>
<tr>
<td>J</td>
<td>juliet</td>
<td>Pilot: state pilot requirements for the movement.</td>
</tr>
<tr>
<td>O</td>
<td>oscar</td>
<td>Maximum present static draught in metres: 4 digit group giving metres and centimetres</td>
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<tr>
<td>P</td>
<td>papa</td>
<td>Cargo/Ballast</td>
</tr>
<tr>
<td>Q</td>
<td>quebec</td>
<td>Defects, damage, deficiencies, other limitations:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brief details of defects, damage, deficiencies or other limitations including any defects in inert gas systems (if appropriate).</td>
</tr>
<tr>
<td>X</td>
<td>x-ray</td>
<td>Miscellaneous</td>
</tr>
</tbody>
</table>
Departure Report

1.7.7.1 The Departure Report should be given by a vessel immediately prior to leaving a berth to commence a movement through a port VTS area. For this purpose the word berth is taken to mean any place in the system including an anchorage, in which the vessel has been stationary for any length of time.

1.7.7.2 The Departure Report should be transmitted to the port VTS Centre on the appropriate VHF working channel.

1.7.7.3 The Departure Report is to alert the port VTS Operator to the vessel's intentions and facilitate the co-ordination of traffic movements.

1.7.7.4 The Departure Report should be transmitted before commencing the movement when:

(a) the vessel is in all respects ready to commence the movement,
(b) the pilot is on the Bridge (if applicable)
(c) tugs and linesmen are in place (if applicable)

1.7.7.5 The Departure Report should contain the following information:

(a) Type of Report (the words DEPARTURE REPORT)
(b) Name/number of berth/anchorage
(c) Destination

Example:

"Cork Port Traffic this is Gaynor W
Departure Report
Berth number two-five
Destination Southampton
Over"

OR

"Cork Port Traffic this is Gaynor W
Departure Report
Anchorage one
Ready to sail for Ro-ro berth
Over"
APENDIX 20 (RESTRICTED TRIALS: CORK RESULTS)

CORK

RESTRICTED TRIALS BY:

PILOTAGE WATERS V.T.S.

This log is designed to help you to carry out preliminary trials on "Harmonised Vessel Traffic Service Communication Procedures." Your participation and help is essential if the Procedures are to work, throughout Europe.

Please answer all questions possible for each communication using the criterion "does it work?". Answer yes or no and keep a tally. A space is left for your overall comment on each item. Use only items which are designated for your port.

Example and suggestions

If you are unable to answer "yes" or "no" please specify separate sheet.

<table>
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### Ships Participating in the Extended Trials

**Gorthon Lines**
- Modo Gorthon
- Joh Gorthon
- Ragna Gorthon
- Lovisa Gorthon
- Stig Gorthon

**9 ships**
- Alida Gorthon
- Ingrid Gorthon
- Margit Gorthon
- Ada Gorthon

**Everards**

**CGM**
- Anjou
- Atlantic Cariter
- Atlantic Service
- Borodine
- Caraibe
- Cavelier de la Salle
- Champlain
- Dumont D'urville
- Eiffel
- Fort Desaix
- Fort Fleur d'Epee
- Fort Royal
- Fort St Charles
- Gauguin
- Grieg
- CGM Velay
- Kangourou
- Korrigan
- La Fayette
- Licorne Atlantique
- Mansart
- Maripasoula

**40 ships**
- Monet
- Montcalm
- Pascal
- Pointe La Rose
- Pointe Madame
- Renoir
- Rodin
- Ronsard
- Rostand
- Rousseau
- Sibelius
- Soufflot
- Tellier
- Utrillo
- Zambeze
APPENDIX 22

A TYPICAL VOYAGE USING HARMONISED VTS COMMUNICATION PROCEDURES

Scenario

Your ship, the 20000TBU Container ship, Gaynor W service speed 22kts is bound for North European ports after a voyage to the Far East. She is fully laden and has on board 25 containers stuffed with IMO Class One dangerous goods. Her present position is 48 degrees 15 minutes North 5 degrees 40 minutes West in the Bay of Biscay, and she is participating in the EEC "COST 301", Harmonised VTS Communication Procedures, Extended Trials.

On her way to Maas Pilot she will contact, successively, Ouessant VTS, Gris Nez VTS, Maas Approaches VTS and Maas Pilot.

This represents a typical voyage, and may be used in connection with other participating VTS Centres.

(On VHF Channel 11) (If fails, VHF Channel 16)

1. Ouessant Traffic, Ouessant Traffic
   this is Gaynor W, Gaynor W
   Over.

2. Gaynor W, Gaynor W
   this is Ouessant Traffic
   Over.

3. Ouessant Traffic
   Gaynor W. COST 301
   Over.

4. Gaynor W
   Ouessant Traffic
   COST 301 - understood
   (see introduction letter)
   REQUEST: give long range report items
   ALPHA through HOTEL and item PAPA
   Over.

5. Ouessant Traffic Gaynor W
   Long range report
   ALPHA GAYNOR W
   CHARLIE 48 DEGREES 15 MINUTES NORTH
   05 DEGREES 40 MINUTES WEST
   ECHO 355 DEGREES
   FOXHOT 21 DEGREAL 5 KNOTS
   GOLF PORT SAID
   HOTEL 25 22 40
   PAPA CONTAINER GENERAL
   25 CONTAINERS IMO CLASS I
   Over.
Gaynor W Guernsey Traffic
Long range report received
REQUEST: Please report at Waypoint one. Listen on VHF Channel 11.
INFORMATION: North-east Outer Lane designated for you. Nothing more.
Out.

Guernsey Traffic Gaynor W
INFORMATION-RECEIVED.
North-east Outer Lane designated for me.
Intention: I will use designated lane.
Nothing more.
Out.

Guernsey Traffic Gaynor W
Movement report.
Waypoint Number one.
Eastbound North-east Outer Lane
Over.

Gaynor W Guernsey Traffic
Understood. Waypoint Number one. Eastbound.
INFORMATION: small craft crossing Eastbound lane 5 miles ahead of you.
Nothing more.
Over.

Guernsey Traffic Gaynor W
Understood: small craft crossing ahead.
Nothing more.
Out.

Guernsey Traffic Gaynor W
Final report.
Leaving boundary. End North-east Outer Lane.
Nothing more.
Over.

Gaynor W Guernsey Traffic
Understood. Leaving system.
Nothing more.
Out.
NOTE POUR LES CHEFS DE QUART NAVIGATION/OPERATION

HARMONISED VTS COMMUNICATION PROCEDURES
EXTENDED TRIALS

ESSAIS COST 301/SEASPEAK

1. La CEE conduit un programme de recherche appelé COST 301 (COST = Cooperation on science and technology).

Ce programme est orienté vers les VTS (Vessel Traffic Systems) et le "Essential English for International Maritime use" baptisé SEASPEAK par son auteur, le Captain Weeks.

Un VTS est un système côtier au service d’une amélioration de la sécurité des navires et d’un meilleur écoulement du trafic. Un VTS peut être un simple pourvoyeur d’informations (ex. CROSS) ou un régulateur actif des mouvements de navires (ex. Port de Rotterdam).

Le "SEASPEAK" est une nouvelle "grammaire" conçue pour une amélioration des échanges radio en langue anglaise (voir annexe 1 : les principes de bases de la grammaire SEASPEAK).

Le CROSS Gris-Nez a été sélectionné pour participer à des essais destinés à tester "SEASPEAK" dans le cadre de son travail de "VTS".

Ces essais devaient commencer le 1er avril, ils ne débuteront pas avant le 12 avril, date à laquelle le Captain Weeks, promoteur de ces essais, viendra à Gris-Nez. Ils devraient durer jusqu’à fin août 1985.

2. Ces essais ne concerneront que les communications avec les navires ayant accepté de participer (une centaine de navires). La liste de ces navires devrait être communiquée prochainement.

Les navires participants appelleront le CROSS (indicatif inchangé : GRIS-NEZ TRAFFIC) en précisant d’emblée le "mot-code" : COST 301, auquel il sera répondu par COST 301 - UNDERSTOOD/signifiant que le CROSS est prêt à dialoguer avec le navire selon la procédure "SEASPEAK (document bleu)/harmonised VTS communication procedures (document rouge)".

3. Quoique le document d’essai (document rouge) puisse en dire, ni le canevas du bulletin d’information, ni le canevas du message MAREP ne seront modifiés.

Notez cependant que les participants utiliseront éventuellement la "LONG RANGE REPORT" et le "INTERMEDIATE RANGE REPORT" (document rouge pages 30 à 32) dont les paragraphes diffèrent de ceux du message MAREP.

Il conviendra donc de reconstruire éventuellement les messages MAREP destinés à être transmis par télex.
Quelque le document d'essai puisse en dire, les marqueurs "SEASPEAK" suivants : INSTRUCTION, DENYING PERMISSION, GIVING PERMISSION ne seront jamais utilisés par le CROSS.

Le marqueur ADVICE sera utilisé avec beaucoup de précaution.

4. Ces essais seront mis à profit pour tenter d'apporter aux navires participants un "plus" sous forme d'INFORMATIONS INDIVIDUALISEES, adaptées au type de navire, à sa position, à son transit.

Il peut être intéressant d'employer cette procédure avec des navires avec lesquels des difficultés de compréhension existent, même s'ils ne participent pas aux essais. Dans ce cas, ne pas oublier que ces navires n'ont pas la documentation de base SEASPEAK/COST 301. Une adaptation des procédures sera nécessaire mais le principe des marqueurs pourra être conservé.

- Avec les navires français, le "COMMON LANGUAGE", le français, sera naturellement utilisé.

5. A la suite de chaque contact reçu dans le cadre de ces essais, la fiche définie en annexe 2 sera renseignée le plus complètement possible.

6. Le faible nombre de navires participants induira un faible nombre d'appels.

Pour éviter tout flottement à la suite d'un appel COST 301, il conviendra donc de relire périodiquement cette note et ses annexes et les documents suivants qui seront laissés à la disposition du Chef de quart navigation : *SEASPEAK - Essential English for international Maritime use (document à couverture bleue).
* HARMONISED VTS PROCEDURES - extended trials (document à couverture rouge)
* Vocabulaire anglais standard de l'OMI.

Gris-Nez, le 5 avril 1985

L'Administrateur de 1ère Classe des Affaires Maritimes MARCHAND
Chef du CROSS Gris-Nez.

Destinataires : 2
Copies : Officier de suppléance
Officier de semaine
DSPBN/NHS
Dover Coastguard
Captain Weeks
M. LEVY (DPNH)
Dossier
Chrono.

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Chiffres et unités utilisées dans les échanges radio maritimes

- Les chiffres sont énoncés séparément et précédés de leur signification.
  
- Exemple:
  - 25 000 T de pétrole brut se dira: QUANTITY: two five thousand tonnes of crude oil.
  - 50° 30′ N se dira: POSITION: LATITUDE: five zero degrees three zero minutes north.
  - 1300 GMT se dira: TIME: one three zero zero GMT.
  - Un retard de 30′ se dira: DELAY is: three zero minutes.
  - ETA Dunkirk Pilot 1300 GMT se dira: ETA Dunkirk Pilot TIME: one three zero zero GMT.

- Seules unités employées:
  
  - Presión barométrica: millibars
  - Parings and course: degrees (toujours 009°, 090°, jamais 9°, 90°)
  - Depth: meters
  - Distance: miles
  - Draught: meters
  - Linear dimensions: meters
  - Radio frequencies: hertz, kilohertz, megahertz
  - Speed: knots
  - Frequency: Channel number
  - Visibility to 1 mile: meters
  - Visibility over 1 mile: nautical miles
  - Wind speed: Beaufort Scale, Knots

Position par rapport à un ami:
  
- Exemple:
  - POSITION: BEARING: one nine four degrees true.
  - DISTANCE: two decimal five miles FROM Cap Gris-Nez.

Procédure VHF:
  
- Vélocité: How do you read, I read .... I=inaudible ....... S=excellent
  - Gris-Nez Traffic vous appelle sur canal 11: Gris-Nez Traffic calling on VHF channel 11.
  - Attendez canal 11: Stand by on VHF channel one one.
  - Changement de canal: SWITCH TO VHF CHANNEL ... Réponse: AGREE VHF CHANNEL ...
  - Please READ BACK veut dire collationner, c'est-à-dire répéter l'information reçue.
  - Please ACKNOWLEDGE veut dire faire l'aperçu, c'est-à-dire accuser réception par UNERSTODOO
  - Pour corriger une erreur: MISTAKE + texte corrigé
  - UI = POSITIVE; NON = NEGATIVE
  - Fin de communication par OUT
Les seuls MARQUEURS utilisés par Gris-Nez pourront être:

**QUESTION** ex. QUESTION: Have you a ship on your starboard side at DISTANCE one mile?

**REASON** ex. QUESTION: Have you a ship.....

**REASON:** For confirmation radar

**INFORMATION** ex. INFORMATION: I see you on my radar

**INFORMATION:** the Hinder one buoy is missing

**WARNING** ex. WARNING: The visibility may be reduced in the Dover strait

**WARNING:** Cable laying operations are taking place in the FITZ

**REQUEST** ex. REQUEST: Report any visibility less than two miles

**REQUEST:** Call again when passing the Bassurelle light vessel

**ADVICE** (à employer avec précaution)

ex. WARNING: Cable laying operations are taking place in the FITZ

**ADVICE:** Listen information broadcast on VHF Channel one one

ex. INFORMATION: an underwater obstruction is reported...

**ADVICE:** a wide berth is requested

Les navires pourront de plus utiliser INTENTION

ex. INTENTION: I intend to cross the NE lane

Les MARQUEURS INSTRUCTION et PERMISSION ne seront jamais utilisés par Gris-Nez.

Les MARQUEURS appellent d'autres MARQUEURS pour introduire les réponses:

**QUESTION..................ANSWER**

**INFORMATION...............INFORMATION RECEIVED**

**REASON...................REASON RECEIVED**

**WARNING..................WARNING RECEIVED**

**ADVICE....................ADVICE RECEIVED**

**REQUEST...................REQUEST RECEIVED**

* Assistance radar: elle a toujours un caractère d'information

**FULL RADAR ASSISTANCE :** informations sur la position du navire et sur celles des autres navires sur zone

**RESTRICTED RADAR ASSISTANCE :** information uniquement sur les positions des navires à proximité
### ANNEXE 2

#### SEASPEAK/COST 301 - EXTENDED TRIALS

**Avril/Août 85**

---

**FICHE D'ESSAIS**

<table>
<thead>
<tr>
<th>DATE :</th>
<th>NOM DU NAVIRE PARTICIPANT</th>
<th>HEURE GMT</th>
<th>LA PROCEDURE SEASPEAK</th>
<th>RAISON DE L'APPEL</th>
<th>L'ECHANGE</th>
<th>SEASPEAK</th>
<th>A-T-IL FACILITE LA COMPREHENSION ?</th>
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<td>A-T-ELLE ETE UTILISEE</td>
<td>MAREP ...</td>
<td>A-T-IL ETE SATISFAISANT ?</td>
<td>A-T-IL ETE D(MANOE 0'INFO ETC ...)</td>
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<td>PAR LE NAVIRE</td>
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APPENDIX 24 (EXTENDED TRIALS DOVER COAST GUARD)

CNIS MEMORANDUM

COST 301 - SEASPEAK TRIAL

References:  
  b. Harmonised VTS Communications Procedures - 6th Draft  
  c. M. Notice 1018 - IMO Vocabulary

1. Background

1.1 The European Community is running a research programme COST (Co-operation on Science Technology) 301. This programme is concerned with the circulation and application of vessel traffic services (VTS) in European waters.

1.2 The work being undertaken by COST 301 is split into the following projects:--

   a. Requirements for navigating and manoeuvring in confined areas.

   b. Determination of common criteria for the definition of problem areas (in 'plainspeak' - risk assessment!).

   c. Survey of existing VTS facilities.

   d. A study of identification methods.

   e. A study of location and tracking methods.

   f. Methods of shore/ship, ship/shore and shore/shore communications and data exchange.

   g. A study of the harmonisation of information and guidance procedures.

   h. Consideration of the Mediterranean Sea as a special area.

1.3 We, here at Dover, have already had to cope with Working Groups probing around into some of these project areas.

1.4 We have now been selected to take part in a COST 301 extended trial into the application of Seaspeak techniques to voice radio communication within VTS. To this end, COST 301 Task Group 7/10 has produced, as an adjunct to the Seaspeak Reference Manual a red covered Operator Manual called "Harmonised VTS Communications Procedures" for trial use.

Conduct of COST 301 Trial of Harmonised VTS Communication Procedures

2.1 The trial was scheduled to start on 1st April 1985, but is now expected to get underway in the next few days. It will go on until the end of August (1985).
2.2 No proper trials orders or instructions have been received. It is understood, however, that:-

a. The powers-that-be realised that it was not possible to fully introduce the use of Seaspeak techniques on 1st April. The policy is to experiment cautiously with those aspects of Seaspeak and Harmonised VTS Communications Procedures which seem appropriate to the particular problems of the Dover Strait T.S.S. and our Channel Navigation Information Service (CNIS) as and when convenient.

b. Dover Coastguard should concentrate its efforts in two particular areas:-

(i) Use of Seaspeak techniques, as extended by "Harmonised VTS Communications Procedures", in the construction wording and use of Information Broadcasts.

(ii) Use of Seaspeak techniques in any communications we may have during the trials with selected vessels that identify themselves through use of the Pro-words 'COST 301'. A list of partaking ships is at Annex F to this minute.

2.3 Regardless of anything to the contrary contained in "Harmonisation of VTS Communications Procedures", the CNIS callsign remains "Dover Coastguard" not "Dover Traffic". However operators must be prepared to respond to calls addressed to Dover Traffic should such calls be heard.

3. CNIS BROADCASTS

3.1 A new pro-forma for CNIS Routine Broadcasts with which to start the trial has been designed and is at Annex B to this minute. This pro-forma is based on the recommended procedures set out in "Harmonised VTS Communication Procedures". It is to be used as soon as the word "GO" is received until further orders. Annex C contains an example of a Routine Broadcast illustrating the use of this pro-forma.

4. Use of Seaspeak MARKERS

4.1 One of the principle features of Seaspeak is the use of 'MARKER' words to introduce what an operator is going to say.

4.2 The Broadcast pro-forma involves the use of these Seaspeak 'Markers'. The defined meanings of 'Marker' words for use in VTS are contained in Chapter 1.3 of "Harmonisation of VTS Communication Procedures". Some of these are inappropriate for CNIS purposes, so for convenience, those that may be used are listed in Annex A to this minute.

4.3 The 'Marker' word INSTRUCTION is not suitable for CNIS purposes. Similarly, giving or denying PERMISSION is not within CNIS terms of reference and should be avoided.
4.4 Senior Watch Officers are to give careful consideration to the circumstances appertaining before authorising the use of a "WARNING" marker. Many situations may well call for use of "WARNING" initially, subsequently to be reduced to the normal level of "INFORMATION" when the situation has stabilised or, for instance, when a WZ Message has been issued.

4.5 Instances in which the use of WARNING is likely to be appropriate are:

Supplementary Broadcast on Rule 10(b)(i) - 'Through' Dangerous Rogue

Routine Broadcast on bad, fast, large Rule 10(b)(i) Rogue in conditions of reduced visibility.

Obstructions in the Traffic Lane. (Cable Laying operations and Fishing Fleets).

Sudden onset of Dense Fog.

Exceptional Low Tides.

Failure of Major Waymark or Position Fixing System (Decca).

4.6 ADVICE should be used sparingly and will normally be associated with a WARNING. It must be remembered that the validity of any advice given may subsequently be tested in Court.

5. WAYMARK Information

5.1 The opportunity is also being taken to experiment with the presentation in Routine CNIS Broadcasts of information about displaced or defective Waymarks.

5.2 The aim is to present the detailed and often extensive Waymark information in a more user friendly order for 'through' ships. These vessels may well be less than familiar with the names and locations of the various marks. To this end, attention will first be drawn to problems with any major marks, shore lights or light vessels and associated raccons that are relevant to all vessels navigating in the Strait in any direction. These will be followed by details of less important defective marks in the order that the mariner will normally encounter them:-

a. For the N.E. Lane
b. For the S.W. Lane
c. For Approaching particular ports, estuaries, special routes or hazards.
5.3 Further guidance as to how these ideas can be put to practical usage can be deduced from Annex B – (Broadcast Pro-forma) – and Annex C (Example of Broadcast).

6. Communications Trial with COST 301 Participating Vessels

6.1 The situation is that the Trial coordinators have arranged with several unspecified companies for their vessels to participate in the trial. These vessels will be using Seaspeak, including "Harmonisation of VTS Communications Procedures", for voice communications with VTS Centres. The ships will indicate to a participating VTS Centre their involvement by using the PRO-WORDS 'COST 301'.

6.2 It is then for the VTS Centre called to try to respond appropriately in Seaspeak to the COST 301 ship station.

6.3 In addition, it is for both the VTS Centre and the participating vessel to form an opinion as to whether the use of Seaspeak contributed to the ease of communications and understanding or not.

6.4 Brief Records of all communications exchanges with COST 301 vessels are required. A self explanatory record sheet pro-forma for internal use is attached at Annex D. This form should be completed by the operator following each communication exchange with a COST 301 participating vessel. These records are then to be forwarded to the CNIS office with the Daily Report.

6.5 It will be seen that this part of the trial presents CNIS operators with a very distinct difficulty and, indeed, challenge. They will not know when they will have to deal with a COST 301 participant. They will not know what subject the participant may raise; what service he may request.

6.6 The only way in which a CNIS operator can hope to respond effectively is by having a sound working knowledge of 'Seaspeak', the IMO Vocabulary and "Harmonisation of VTS Communications Procedures".

6.7 The only copies held of the Seaspeak Reference Manual and "Harmonisation of VTS Communications Procedures" will be placed in the Operations Room along with copies of the IMO Vocabulary for reference and study. In addition, extracts of particularly relevant parts of these publications are contained in Annex E to this minute.

7. EXHORTATION

7.1 Communications with vessels whose grasp of English may, at best, be suspect is very much our business at Dover Coastguard. It is clearly a matter of professional competence that we should welcome and follow up any initiative or suggestion that could improve the chances of achieving greater certainty of communication and understanding with our customers.
7.2 A disciplined and formalised approach to the use of English on the lines of Seaspeak could well provide such an opportunity.

7.3 With this in mind, I ask you to give this COST 301 Trial your serious attention. Please study the Seaspeak publications and try to grasp the philosophy behind them.

7.4 When you have some feel for Seaspeak, try to get some practice in its use. Use it on non-participating vessels, particularly those that have a language problem. It can do no harm and may well be beneficial.

7.5 The more we know about the problems of communicating ideas and information, the better we will be able to cope with difficulties when they arise!

7.6 Good luck!

H J Neill
Deputy Regional Controller (CNIS)
HM Coastguard
Dover

30 April 1985

Distribution:–

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<td>Chief Coastguard</td>
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<tr>
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<td>Captain D James</td>
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ANNEX A TO COST 301 SEASPEAK TRIAL

SEASPEAK MARKERS FOR USE BY CNIS - DEFINITIONS

A.1.1 Message Markers are used to indicate the status of the message; to make clear to the recipients the level of authority that the VTS Centre wishes to imply.

A.1.2 The MARKERS that may commonly be used within the level of authority of CNIS are:-

(a) Question
(b) Information
(c) Warning
(d) Advice
(e) Request

A.1.3 The meanings of these Markers are as follows:-

(a) QUESTION: - signifies that what follows is a question and that an ANSWER is required.
(b) INFORMATION: - signifies that what follows is restricted to observed facts.
(c) WARNING: - signifies that what follows informs other traffic about dangers.
(d) ADVICE: - signifies that what follows implies the intention of the sender to influence the recipient(s) by recommendation.
(e) REQUEST: - signifies to the recipient that what follows is seeking his cooperation to do something for the originator of the message in the future.

2. Examples of Use of MARKERS

2.1 The following examples illustrate the use of MARKERS:

2.1.1 (a) QUESTION - What is your draught?
(b) QUESTION - What are your intentions?

2.1.2 (a) INFORMATION - Your POSITION IS LATITUDE _________
                  LONGITUDE _________

(b) INFORMATION - CROSSING THE TRAFFIC Lanes IN COMPLIANCE WITH COLREG RULE ONE ZERO CHARLIE IS PERMITTED.
2.1.3 (a) WARNING - VISIBILITY IS REDUCED TO LESS THAN 500 METRES throughout the Dover Strait.

(b) WARNING - DECCA ENGLISH CHAIN 5 IS UNRELIABLE

(c) WARNING - EXCEPTIONALLY LOW TIDES ARE FORECAST IN DOVER STRAIT AT ______________

(d) WARNING - Cable Laying Operations are in progress in S.W. Lane In Position ______________, restricting the flow of traffic past the Varne Bank.

2.1.4 ADVICE - S.W. BOUND VESSELS SHOULD USE THE EITZ PASSING AT LEAST 1 mile clear to the North and West of CABLE LAYER.

2.1.5 REQUEST - PLEASE CALL AGAIN WHEN PASSING THE BASSURELLE LIGHT VESSEL.
ANNEX B TO COST 301 SEASPEAK TRIAL

CMIS ROUTINE BROADCAST - FORMAT

CHANNEL 16 BROADCAST
All ships in Dover Strait
This is
dover Coastguard
Navigation Information Broadcast for Dover Strait Area
Switch to VHF channel one zero
Out

CHANNEL 10 BROADCAST
All ships in Dover Strait.
This is
dover Coastguard.
Navigation Information Broadcast for Dover Strait Area
TIME___________ GMT
(Then include below under appropriate marker, subject headings as appropriate, adding additional ones and deleting those not in use as required).

WARNING(S) (if applicable)

ADVICE (associated with WARNING if applicable)

POSITION FIXING SYSTEM INFORMATION (if applicable)

VISIBILITY INFORMATION (if applicable)

TIDAL INFORMATION (if applicable)
WAYMARK INFORMATION (if applicable - delete sub-headings if not needed)

(a) First include information about major waymarks, light houses, light vessels or racons relevant to all ships in Strait.

Mark Problem

(b) Then deal with lesser waymarks, buoys, etc. as they present themselves to the Mariners, deleting and adding sub-headings as required:—

For the North East Lane and French Inshore Traffic Zone:—

(Buoys in N.E. Lane, Separation Zones either side, and FITZ in order S.W. to N.E.)

Mark Problem

For the DEEP WATER ROUTE:—

(Buoys in D.W. Route and Control Separation Zone in order S.W. to N.E.)

Mark Problem

For the S.W. Lane and English Inshore Traffic Zone:—

(Buoys in S.W. Lane and Separation Zone with EITZ in order N.E. to S.W.)

Mark Problem

For the Approaches to:—

Calais
Dunkirk
Folkestone
Dover
Thames Estuary
Scheidt etc. as required:—

(Buoys and marks in inward bound order)

Mark Problem

For the GULL STREAM or other special situation as required:—

Mark Problem
SHIP MOVEMENTS INFORMATION (if applicable)

(a) Burdened ships (MAREPS)
(b) Contravening Rule 10 of COLREGS  
As in past.

GENERAL INFORMATION (if applicable)

OUT

(Note: All letters, figures, measurements, quantities, times, positions, bearings, distances, references, reporting points, and electronic fixings should be in accordance with Section 1, 3 to 8 of SEASPEAK Reference Manual).

END OF INFORMATION
ANNEX C TO COST 301 SEASPEAK TRIAL

EXAMPLE CNIS ROUTINE BROADCAST

CHANNEL 16 BROADCAST
All ships in Dover Strait.
This is
Dover Coastguard.
Navigation broadcast for Dover Strait Area
Switch to VHF channel one zero
Out

CHANNEL 10 BROADCAST
All ships in Dover Strait.
This is
Dover Coastguard.
Navigation information broadcast for Dover Strait Area
TIME one zero four zero GMT

WARNING
In the North East Lane:
Cable laying operations are in progress in the vicinity of the Mike Papa Charle buoy. Barge L M Balder is moored in a buoyed complex centred in position latitude five one degrees zero five minutes North, longitude zero zero one degrees three three decimal five East. Guardships are in attendance.

ADVICE
Traffic in the North East Lane should pass to the East of this complex.

WARNING
Dense fog patches have been reported in the vicinity of the Bassurelle Light Vessel.

REQUEST
Reports of visibility of less than 2 miles are requested.
WARNING

In the South West Lane ship track letter Golf Alpha in position bearing three three five degrees true distance one decimal eight miles from Varne Light Vessel, track zero four zero, speed one seven knots. This vessel is proceeding against the traffic flow.

WAYMARK INFORMATION

Bassurelle Light Vessel reported off station in position bearing one six zero degrees true two decimal three miles from charted position.

For the North East Lane and French Inshore Traffic Zone:

- Ridens North East buoy unreliable
- Bassure de Baas buoy unlit
- Zulu Charlie two buoy unlit

For the South West Lane:

- Charlie Sierra four missing from station

For the approaches to Calais:

- Charlie Alpha three buoy damaged

SHIP MOVEMENTS INFORMATION

In the North East Lane:

The VLCC Bigone Two hampered by draught of one eight metres in position bearing zero four five degrees true, distance one decimal eight miles from Bassurelle Light Vessel, track zero three five, speed one two knots.

REQUEST

Ships are requested to give BIGONE TWO a wide berth.

Ship track letter Foxtrot Bravo in position bearing two two zero degrees true, distance one decimal nine miles from Sandettie Light Vessel, track one six zero, speed six knots. This track appears to contravene Rule one zero of the Collision Regulations.

OUT

(Note: All letters, figures, measurements, quantities, times, positions, bearings, distances, references, reporting points, and electronic fixings should be in accordance with Section 1, 3 to 8 of SEASPEAK Reference Manual).
## Participating vessels using Code Words "COST 301"

<table>
<thead>
<tr>
<th>Name of vessel</th>
<th>Time</th>
<th>Was Seaspeak Procedure used?</th>
<th>Type of call and/or reason e.g. Marep or Radar assistance</th>
<th>Was it a satisfactory Comm. Exchange? Yes/No</th>
<th>Did Seaspeak contribute to understanding? Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
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</table>
ANNEX E TO COST 301 - SEASPEAK TRIAL

SEASPEAK PROCEDURES

E.1 TRANSMISSION OF NUMBERS

E.1.1 Numbers are pronounced as in normal English except for a few numbers which have modified pronunciation to ensure that they are more clearly received (see table below).

E.1.2 The decimal point is expressed by the word decimal pronounced day-see-mal).

E.1.3 Each digit must be given separately.

E.1.4 If the number is a whole thousand, e.g. 25,000, the number of thousands is given by separate digits followed by the word thousand. If it is not a whole thousand, e.g. 25,256, it is given by separate digits without using the word thousand.

E.1.5 Examples

<table>
<thead>
<tr>
<th>Figure</th>
<th>Pronunciation Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>TOO</td>
</tr>
<tr>
<td>15</td>
<td>WUN-FIFE</td>
</tr>
<tr>
<td>34</td>
<td>TREE-FOWER</td>
</tr>
<tr>
<td>217</td>
<td>TOO-WUN-SEVEN</td>
</tr>
<tr>
<td>25,000</td>
<td>TOO-FIFE-THOUSAND</td>
</tr>
<tr>
<td>25,256</td>
<td>TOO-FIFE-TOO-FIFE-SIX</td>
</tr>
<tr>
<td>250,000</td>
<td>TOO-FIFE-ZERO-THOUSAND</td>
</tr>
<tr>
<td>36.04</td>
<td>TREE-SIX DAYSEEMAL</td>
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<tr>
<td></td>
<td>ZERO-FOWER</td>
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</table>

E.2 STANDARD UNITS OF MEASUREMENT

E.2.1 To Measure | SEASPEAK Term | Notes
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Barometric pressure</td>
<td>millibars</td>
<td>Always 009°, 090°, etc. never 9°, 90°</td>
</tr>
<tr>
<td>Bearings and courses</td>
<td>degrees</td>
<td></td>
</tr>
<tr>
<td>Depth</td>
<td>metres</td>
<td></td>
</tr>
<tr>
<td>Distance</td>
<td>miles</td>
<td></td>
</tr>
<tr>
<td>Draught</td>
<td>metres</td>
<td></td>
</tr>
<tr>
<td>Linear dimensions</td>
<td>metre(s)</td>
<td></td>
</tr>
<tr>
<td>Radio frequencies</td>
<td>hertz, kilohertz, megahertz</td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td>knots</td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>degrees Celsius</td>
<td></td>
</tr>
</tbody>
</table>
To Measure | SEASPEAK Term | Notes
--- | --- | ---
VHF frequency | Channel number | 
Visibility to one mile (2000 metres) | metres | 
Visibility over one mile (2000 metres) | nautical miles | 
Wind speed | Beaufort Scale, Knots. | 

E.3 POSITIONS

E.3.1 Methods of giving a Position

Position can be given in five ways:

(a) latitude and longitude;
(b) bearing and distance;
(c) reference to a navigation mark;
(d) by reporting points;
(e) electronic position-fixing references.

E.3.2 How to use the Methods

a. When giving a position by VHF the positional information must be preceded by the word position.

b. Time of position, if needed, is to be transmitted after the word position and before the first element of the positional information.

c. If required, the method of obtaining the position and its accuracy may be given after the last element of the positional information in the order:

(i) method (e.g. Sat-Nav, Radar, Loran etc.)
(ii) accuracy (e.g. good, poor or bad)

d. In cases of language difficulty, preference should be given to the "Lat. and Long." method.

E.3.3 Latitude and Longitude Method

Example Position: latitude: three-zero degrees five-zero North
longitude: zero-one-eight degrees two-five decimal zero-two minutes East

E.3.4 Bearing and Distance

Example Position bearing: one-nine-four degrees true
distance: one-two decimal four miles from Cape Otway
E.3.5 Reference to a Navigation Mark

Example  position: Northeast from Rangitoto Beacon.
          position: approaching Goeree Light Tower.
          position: between buoy number: one-three and
                     buoy number: one-five.

E.3.6 Electronic Position Fixing

Example  position: Decca, two bravo, red two-one decimal
          four, green three-two decimal five.

E.4 TIME

E.4.1 The unit to be used is GMT (UTC, for all intents and purposes identical).

Example  time: one-five-zero-zero GMT

Example  ETA: one-zero-three-zero GMT

E.4.2 Periods of Time

Example  delay is period: three-zero minutes

E.5 DATES

E.5.1 The prefixes for fixing dates are day, month, year, in that order.

Example  day: one-three; month: zero-five; year: one-nine-eight-two

E.6 ABBREVIATIONS

E.6.1 Some common names and terms are known by their initial letters. There
      are two types of such abbreviations: (i) where the initial letters are
      pronounced separately e.g. ETC; (ii) where the initial letters are
      pronounced as if they formed a world e.g. RoRo.

      (i) List of common abbreviations spoken as initial letters, showing
          the full spelling from which the initials are taken:

      | Initials | From the spelling of                        |
      |----------|--------------------------------------------|
      | AC       | alternating current                        |
      | AM       | amplitude modulation                       |
      | BHP      | brake horsepower                           |
      | CG       | centre of gravity: or Coastguard (UK) or   |
      |          | Coast Guard (US)                           |
      | CPA      | closest point of approach                  |
      | CO₂      | carbon dioxide                             |
      | CRT      | cathode ray tube                           |
      | DC       | direct current                             |
      | DF       | direction finding                          |
      | EP       | estimated position                         |

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### Initials

<table>
<thead>
<tr>
<th>Initial</th>
<th>From the spelling of</th>
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<tbody>
<tr>
<td>ETA</td>
<td>estimated time of arrival</td>
</tr>
<tr>
<td>ETD</td>
<td>estimated time of departure</td>
</tr>
<tr>
<td>FM</td>
<td>frequency modulation</td>
</tr>
<tr>
<td>GM</td>
<td>metacentric height</td>
</tr>
<tr>
<td>GMT</td>
<td>Greenwich Mean Time</td>
</tr>
<tr>
<td>HF</td>
<td>high frequency</td>
</tr>
<tr>
<td>IHP</td>
<td>indicated horsepower</td>
</tr>
<tr>
<td>IMO</td>
<td>International Maritime Organisation</td>
</tr>
<tr>
<td>LF</td>
<td>low frequency</td>
</tr>
<tr>
<td>LNG</td>
<td>liquified natural gas</td>
</tr>
<tr>
<td>LOP</td>
<td>line of position</td>
</tr>
<tr>
<td>LPG</td>
<td>liquified petroleum gas</td>
</tr>
<tr>
<td>MCT</td>
<td>moment to change trim</td>
</tr>
<tr>
<td>MF</td>
<td>medium frequency</td>
</tr>
<tr>
<td>PPI</td>
<td>plan position indicator (radar screen)</td>
</tr>
<tr>
<td>RT</td>
<td>radio telephony</td>
</tr>
<tr>
<td>SAR</td>
<td>search and rescue</td>
</tr>
<tr>
<td>SHP</td>
<td>shaft horsepower</td>
</tr>
<tr>
<td>SI</td>
<td>Systeme Internationale d'Unites</td>
</tr>
<tr>
<td>SSB</td>
<td>single side band</td>
</tr>
<tr>
<td>TPC</td>
<td>tonnes per centimetre</td>
</tr>
<tr>
<td>TPI</td>
<td>tonnes per inch</td>
</tr>
<tr>
<td>TRS</td>
<td>tropical revolving storm</td>
</tr>
<tr>
<td>UHF</td>
<td>ultra high frequency</td>
</tr>
<tr>
<td>ULCC</td>
<td>ultra-large crude (oil) carrier</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>UTC</td>
<td>co-ordinated universal time</td>
</tr>
<tr>
<td>VHF</td>
<td>very high frequency</td>
</tr>
<tr>
<td>VLCC</td>
<td>very large crude (oil) carrier</td>
</tr>
<tr>
<td>VLF</td>
<td>very low frequency</td>
</tr>
<tr>
<td>WT</td>
<td>wireless telegraphy</td>
</tr>
</tbody>
</table>

(ii) List of words pronounced as if the initial formed a single word.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>From the spelling of</th>
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<tbody>
<tr>
<td>AMVER</td>
<td>Automated Mutual Vessel Rescue system</td>
</tr>
<tr>
<td>IALA</td>
<td>International Association of Lighthouse Authorities</td>
</tr>
<tr>
<td>LASH</td>
<td>Lighter Aboard SHip system</td>
</tr>
<tr>
<td>OBO</td>
<td>Oil/Bulk Ore ship</td>
</tr>
<tr>
<td>RAS</td>
<td>Replenishment At Sea</td>
</tr>
<tr>
<td>RoRo</td>
<td>Roll On-Roll Off</td>
</tr>
<tr>
<td>SATCOM</td>
<td>SATellite CONmunications</td>
</tr>
<tr>
<td>SATNAV</td>
<td>SATellite NAVigation</td>
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</table>
## EXTENDED TRIALS: RESULTS FROM WANDELAAR PILOT STATION

### SHORE STATION LOG (HORT APPOACHES VIS)

(See instruction sheet for method of use)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>SUBJECT</th>
<th>Does your equipment allow you to use this procedure?</th>
<th>In the trials, do you use it?</th>
<th>Does it work?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.2</td>
<td>Common language</td>
<td>Yes 4, No 3</td>
<td>Yes 8</td>
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<td>1.1.3</td>
<td>S.M.N.V.</td>
<td>Yes 40, No 10</td>
<td>Yes 12</td>
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<tr>
<td>1.2.1</td>
<td>Information Service</td>
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<td>Listening vessels</td>
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<td>Watchkeeping on ships</td>
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<td>1.2.5</td>
<td>Requests for information</td>
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<td>1.3.1</td>
<td>Status words</td>
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<td>Information</td>
<td>Yes 44, No 4</td>
<td>Yes 3</td>
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<td>Denying Permission</td>
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<td>Enquiring about permission</td>
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<td>Response to markers</td>
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<td>Assistance to navigation</td>
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<td>Position of vessel</td>
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<td>Full radar assistance</td>
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<td>1.4.3.3</td>
<td>Offer of assistance</td>
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323
<table>
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<th>Yes</th>
<th>No</th>
<th>Yes</th>
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<td>Standard Call names</td>
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<td>Pilot arrangements frequency</td>
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<td>13</td>
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<td>ITEM</td>
<td>SUBJECT</td>
<td>Does your equipment allow you to use this procedure?</td>
<td>In the trials, do you use it?</td>
<td>Does it work?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
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<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
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<td>4.8.4.3</td>
<td>Pilot VHF Channel use</td>
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<td>Movement report contents</td>
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<td>4.8.5.4</td>
<td>Transfer of areas</td>
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<td>4.8.6.2</td>
<td>Final report contents</td>
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326
<table>
<thead>
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<th>Reference</th>
<th>Description</th>
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<td>Reference</td>
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<td>Likert (1932)</td>
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</tr>
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