SITUATION REPORT COVERING DIVING IN THE OFF-SHORE INDUSTRY IN THE NORTH SEA IN 1979

by Commander SA Warner OBE, DSC, Chief Inspector of Diving, UK.

Mr Chairman, Ladies and Gentlemen.

Thank you once again for asking me to talk at your annual Symposium. I have no doubt in my mind that the International Diving Symposium is the premier forum in the world for discussion of all diving matters.

Activity in the North Sea during 1979 continued at much the same exposure level as 1978. The main activities involved construction, inspection and maintenance, repair operations and limited pipeline operations. Exploration activity was at a low level, however, this is expected to increase in the very near future which in turn, one hopes, would indicate a general increase in diving activity in 1981 and onwards. It is estimated that the diver involvement in the whole of the North Sea peaked at about 2000 plus last year.

I propose to start as I did last year with a very brief run down on last year's accident record. There were a total of 3 fatalities in 2 diving accidents in the North Sea last year, both of which occurred in the UK sector.

The first one involved a diver engaged in grit blasting operations at about 120 feet. The diver was breathing air from a surface supply and either pulled or blew off his helmet. He was wearing a dry suit with suit inflation and it is possible that he "blew up" and that the air in the suit blew past his neck seal into his personal neoprene hood which in turn lifted off his head and blocked the vent hole in his main hood.

In August a diving bell was lost from the diving support vessel "Wildrake" whilst operating on a SALM base at just under 500 feet.

Rescue operations failed to recover the bell and the divers before they both died. I am unable to give you further details on this particular accident until a public Fatal Accident Inquiry has been held except that I can say that the diving operation was not taking place from a dynamically positioned vessel and almost certainly cold played a major part in their deaths.

Dangerous occurrences, minor incidents and near misses continued to occur in the UK sector at a level not unlike that of last year.

You may remember, that I told you last year about an accident in which 2 divers lost their lives in a diving bell as a result of a dynamically positioned vessel being blown off station, dragging the bell's wires, life support system and the bottom guide weight wires across the anchor cables of another vessel. In one incident 3 methods of the bell recovery were lost.

In spite of the fact that dynamically positioned vessels have been in operation for many years I am still worried about the various danger aspects of divers operating from them.

As I told you last year the UK initiated a project to form a risk analysis study of diving from dynamically positioned vessels. The original study has been completed and a draft guidance note was issued to the industry as a consultative document. Many remarks have been received and many proposed amendments have been submitted. These are being studied and sorted out. It is hoped that agreed "guidance notes" will be issued in the very near future. The final part of the project is being carried out as a co-operative effort between the United Kingdom and Norway. I will ensure that interested parties in the United States receive copies of the final document as soon as it is issued.

We continue to analyse the figures we have on accidents and an up to date broad breakdown of the percentage involvement of various factors in the fatal accidents. I would like to point out that I am quoting the involvement of those factors and not necessarily the major cause of the accident:-

Human error	50%
Medical unfitness	6%
Inadequate training	16%
Equipment failure	30%
Lack of equipment	9%
Inadequate medical supervision	4%
Poor diving supervision	25%
Poor equipment maintenance	7%
Surface interface weather conditions	12%
Inadequate decompression schedules	Nil

for fatal accidents

Just before I left UK I received a copy of the report on Occupational Mortality in North Sea Divers by Dr Maurice Cross.

In the sight of the media, commercial oilfield diving is dangerous and a fatal accident usually receives considerable coverage. This tends to create a disproportionate amount of emphasis on the risks of diving and reflects adversely on the industry. In fact, little objective information exists as to the true fatality incidence in relationship to other activities such as coal-mining or surface on oil installations which may carry as high an incidence.

Using as a population substrata the numbers of certificates of fitness to dive issued by UK diving physicians and examining the numbers of deaths in individuals who would have been in possession of such certificates, a formal analysis has been made of the Standardised Mortality Ratio for commercial diving. It would appear that the safety standard have improved to the point where, from being one of the most dangerous activities in 1925, commercial divers now have the same fatality rates as other industrial workers such as engineers and coal-face workers.

However, minor cases of decompression sickness and the very occasional serious case continues to arise, but, in general, the therapeutic tables available appear to be adequate when used correctly.

At one period I was getting worried about the number of minor decompression sickness incidents being reported when using the United States Navy Surface Decompression Schedules. On investigation it was found that the incidents were probably less than 2%. I am sure that you will appreciate there is considerable difficulty in getting hard facts and exact figures on all these incidents and my knowledge is only as good as the information that is passed to me by the diving companies.

I hate the idea of generating "paperwork" but there is no doubt that something like a quarterly return covering such factors as total diver exposure time, depth, number of cases of decompression sickness, tables employed, etc, etc, would be of considerable help in progressing diving safety and certainly would help those who are carrying out research.

It is perhaps of interest to note that in the UK there was one fatality in inshore diving operations and 13 amongst sport divers in 1979.

The design of diving bells and the technique of employment them is very topical at the moment. The Association of Offshore Diving Contractors have produced guidance of diving bell operations recently. Tom Hollobone, the secretary of the AODC is here at the Symposium and would be pleased to provide further information to anybody interested.

I still believe that prevention of accidents must be the foremost approach to diving bell safety techniques. However, there is no doubt that serious consideration must be given to the provision of autonomous life support for bells. The biggest problem of course is to provide enough heat to maintain safe thermal balance for, say, 24 hours. As you know this provides a very difficult objective in deep helium atmospheres.

In addition, history has shown that there is a very real need for "bell" relocation systems which can be used in the event of a bell or submersible being lost. Probably the best technique for relocation is the employment of sonar beacons and as I told you on Tuesday, investigation into this subject is currently taking place in the UK and Norway. I regret unfortunately there is no international organisation or register which allocates sonar frequencies. To a certain extent one is restricted to a comparatively short band by the law of physics but I believe that it is necessary to have an internationally accepted emergency frequency which provides the necessary range, free from interference and compatible with sonar equipment fitted to diving support ships or, with portable location equipment. It is envisaged that diving bells be fitted with a pinger which can be activated in an emergency, that diving support ships be either fitted with or have available location equipment for that frequency and, that the diving industry have available diver held final location sets.

The AODC in conjunction with the UK and Norwegian government intend to hold a meeting in Aberdeen on 21 February to finalise the requirements for a sonar beacon relocation system and in particular the frequency. The decisions made at this meeting will be publicised immediately. Tom Hollobone is the contact man for anybody wishing to attend.

Since the introduction of the first transfer under pressure diving system there has been discussions and arguments about bell design and operation techniques. I think the time has come for the industry and governments to take a very close look at this problem and attempt to answer a few of the main questions in an agreed and unified voice.

I would like to use this Symposium to generate thought on the particular subjects of diving bell operations. I suggest this, because, other industries and indeed some people within the diving industry produce statements that "divers are still flying by the seats of their pants". In many ways this is true but tremendous progress has been made within a short period of time. Much of this progress has been initiated by the pioneering spirit backed up by a tremendous amount of medical and physiological research.

In spite of all this I would like to generate thought on the following subjects:

- Should a diving bell be heavy or should a bell be light with added weights that can be slipped in an emergency?

- Should the weights, if fitted, be underslung, or secured around the bell?

- Should there be an interlock between the bottom door of the bell and the slipping device to prevent accidental slipping of the weights with the bottom door open?

- Should there be an interlock between the slipping device and any cutting device for the lifting wire and umbilical to prevent the bell turning upside down or even obtaining an upside down position half way to the surface, anchored by a piece of lifting cable or umbilical, when the weights are slipped?

- Would the introduction of such a system of interlock increase safety or would they increase the areas for error thereby introducing more danger?

- Should the bell be top mated, side mated, or is a rolling technique acceptable? In answering this particular question one has to remember that history shows that divers becoming unconscious in the bell have in the past fallen onto the bottom door and thereby, in top mating bells, have produced a tremendous problem for rescuers.
- What is the best method of securing the bell to the transfer under pressure chamber?

- Should the hatches be round or elliptical in shape?

- What is the best size for hatches on which to standardise?

Bell, through water, communications present another area which requires a much closer study. What is the best frequency for through water communications?

I believe that we should aim to standardise on basic bell design and mating techniques in the long term. It is probably because such things as diving bells take a very long time to wear out that little impetus is given to standardisation.

We continue to place considerable emphasis on good diving training and the need for all new divers to achieve minimum standards. The UK standards have been available for several years now and there is a legal requirement on diving companies to ensure that these standards are met. You may have heard that I have written to some American Diving schools and pointed out that their curriculum does not achieve the terminal objectives required in the UK standards. This was not a sudden, without warning action. The basic air standard was published in 1975 and the mixed gas standard in 1976. These standards are designed on the achievement of certain terminal objectives. In January 1977 and again in January 1978 diving memorandums were issued drawing attention to the need to conform to these standards. I would suggest that our introduction time scale has been very generous.

There is no doubt in my mind that in general the United States diving training centres produce extremely knowledgeable graduates but, most of them sadly lack exposure to open water diving, exposure to depth and pressure.

I think it is fair to say that as a general rule diving graduates in the United States continue their diving career with several years' apprenticeship. In the North Sea they are often literally thrown into the deep end. This is one of the reasons that we require them to have had exposure to depth and pressure.

The United Kingdom continues to support research projects in diving safety matters and work continues on:-

Carbon dioxide retention in divers.
Central body rewarming device.
Excursion diving tables for oxy-nitrogen.
Investigation of unexplained unconsciousness in divers.
Investigation of anaesthesia in high ambient pressure.
Safe thermal conditions for divers.
Long term environmental effects on divers.
Effect of a muscle relaxant at hyperbaric pressure.
Production of a "black box" dive recorder.

And of course, research continues into the safety aspects of divers operating from dynamically positioned vessels.

CONFEDERATION MONDIALE DES ACTIVITIES SUB-AQUATIQUES

World Underwater Federation
34, rue du Colisee, 75008 PARIS, FRANCE

Paris, March 1, 1980.

CIRCULAR LETTER TO ALL FEDERAL DOCTORS

SUBJECT: NEXT MEDICAL COLLOQUY IN CANCUN (MEXICO) IN DECEMBER 1980

Dear Colleague,

The Medical and Accident Prevention Commission, convened in Barcelona in January 1980, has decided to hold during the CMAS World Congress:

- a General Assembly with elections
- a Medical Colloquy

The organisation of the medical colloquy has been confided to Dr Spinola from the Mexican Federation and to me.

It is the first time that the Medical Colloquy is held in Central America and know that a great number of American doctors are interested by this manifestation which will allow them to establish closer contacts with their European colleagues.

So this Medical Colloquy will take place in Cancun (Yucatan) from the 1st to the 5th of December, 1980.

The main themes of this colloquy are as follows:

- "Aptitude and inaptitude for diving" with presentation of the new CMAS international form of aptitude, prepared by Dr Ehm (RFA).
- "Diving accidents and their treatments" and presentation by Dr Tailleur and Dr Holmberg, of the form for diving accidents.
- Free communications.

The persons who wish to present papers must send us:
- before the 30th Jane, 1980: the title, the abstract, the duration and
- before the 31st August, 1980 the complete text of the paper.

We are preparing the programme of this colloquy in order to let a large place for touring and diving, for Mexico is a country particularly favoured in these fields.

We hope that you will be interested by our proposition and that you will come numerous to Mexico.

Yours sincerely,

Dr Marcel BIBAS
Responsible for Public Relations for CMP CMAS.