

# ATTITUDES OF DIVERS AND SUPERVISORS TO INTERIM GUIDELINES

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## SUMMARY

This document reports on the findings of a survey conducted among 369 divers and 63 supervisors during June/July 1991. The objectives of the survey were to investigate the attitudes of divers and supervisors towards the current guidelines surrounding bell run and lock-out times and refreshment breaks.

### 1. Characteristics of Divers and Supervisors

Most divers and supervisors have a wide **variety** of experience, having worked for different contractor companies and in both the UK and other countries. It is important to understand the experience they have since this is likely to affect their attitudes.

(Section 1)

### 2. Overall Satisfaction with the Current Guidelines

Greater length of experience, experience of working in Norway and working for two or more contractors are all influential factors on divers' attitudes towards the guidelines, leading to a rather lower level of overall satisfaction.

Generally, however, there is a very **high** level of satisfaction with the current guidelines both among divers and - to an even greater extent - among supervisors, and the UK is thought to compare very favourably with other countries.

### 3. Usual and Preferred Pattern of Working

The **three** man bell is the run more **usually** worked. Divers tend to prefer working the bell run that they are most used to, while supervisors show a clear preference for supervising **three** man bell runs.

(Section 3.1)

### 4. Awareness of Current Guidelines

Awareness of the guidelines is higher for the two man bell than it is for the three man bell and supervisors are more aware than divers.

(Section 3.2)

### 5. Attitudes to Bell Run and Lock-out Times

There is general satisfaction with the current guidelines for both two man and three man bells. The main area of dissatisfaction is with the 6 hour lock-out in a three man bell when two divers lock-out and one diver stays dry.

However when asked directly, whether, in a three man bell, they prefer a 4 hour lock-out for all three divers or a 6 hour lock-out for just two divers, there is a very clear preference for the 6 hour lock-out. It is more important to divers that the bell man stays dry than that they have to spend 6 rather than 4 hours in the water.

(Sections 3.3 and 3.4)

## 6. Attitudes to the Run Time to a Dry Habitat

There is general satisfaction with the recommended run time to a dry habitat although the base of respondents in our sample who have experience of dry habitat work is very low and we have therefore to be cautious in the conclusions we draw.

(Section 4)

## 7. Refreshment Breaks

The survey indicates that supervisors do not always offer refreshment breaks when they should and that divers do not always feel they can ask for a break when they feel they need one. The guidelines ought perhaps to be tightened up although from the divers' point of view, it is also important that there remains some flexibility; divers do not always **want** to take a break at the recommended time.

Divers should **never** allow themselves to continue working if they feel it is unsafe to do so, and so it seems that (a) supervisors ought to be more ready to **offer** breaks and that (b) there should be no penalty for divers who **ask** for breaks.

The whole area of refreshment breaks is one which requires some attention.

(Section 5)

## INTRODUCTION

### BACKGROUND AND OBJECTIVES

The Petroleum Engineering Division of the Department of Energy is considering drawing up new guidelines to cover the working practices of saturation divers in the North Sea (ie. those divers working under British regulations).

They wish to understand the attitudes of both divers and supervisors to their own working conditions, particularly regarding **safety** conditions when working an eight hour bell run.

With this aim the British Market Research Bureau was commissioned to conduct an independent survey amongst registered North Sea divers and supervisors.

The main aims of the survey were to establish divers' and supervisors' attitudes to the following:

- (i) the total bell run time
- (ii) the diver lock-out period for:
  - (a) the 2 man bell
  - (b) the 3 man bell
- (iii) the bell run to a dry welding habitat
- (iv) refreshment breaks

### METHODOLOGY

The survey was conducted amongst certified saturation divers and qualified supervisors or superintendents who have worked on the UK shelf in the past three years, that is since and including 1988. Names, phone numbers and certificate numbers were provided from two sources, the contractors responsible for employing divers, and the Health and Safety Executive which has a full listing of all Part II qualified divers and supervisors. A de- duplication exercise was carried out, before the start of fieldwork, in order to minimise the chances of recontacting respondents who appeared on both lists.

Over 1100 names were provided and contact was attempted up to 10 times with every one of these. Upon contact, 'screening' was carried out to establish for each one, whether they fulfilled our criteria of eligibility (ie. that they have saturation dived or supervised on the UK continental shelf in the last three years).

Interviewing was conducted on the telephone by TMRB, the specialist telephone survey unit within BMRB, using a CATI system (computer assisted telephone interviewing). All interviewing was conducted at a central location by fully trained telephone interviewers, working under supervision.

The questionnaire was developed by BMRB in discussion with the Department of Energy and with the cooperation of the AODC and RMT. A small-scale pilot exercise

was carried out to test the questionnaire before the start of main stage fieldwork. Research executives from BMRB were present during the pilot exercise and some small revisions were agreed and incorporated into the final questionnaire to improve its flow and to ensure that all questions were readily understood. All interviewers were personally and thoroughly briefed (this included showing a video about "Safe Diving") before starting work. Interviewing was conducted in afternoons, evenings and at weekends over a 6 week period (to allow for periods out in saturation) between 10th June and 21 July 1991.

A total of 432 effective interviews was achieved, 369 among divers out of a target of 400, and 63 among supervisors out of a target of 100. Interviewing did not start until the height of the diving season and some divers were unavailable throughout the entire period of interviewing. It was also the case that a fairly high proportion of the telephone numbers provided were unobtainable. There was however a very low rate of refusal (1%). Once the nature of the survey and BMRB's involvement in it had been explained and divers had been reassured of complete confidentiality, almost all those who were contacted, were willing to participate. Full details of response are included at Appendix A.

## **ARRANGEMENT OF THIS REPORT**

Following this introduction is a summary of the main findings of the research. The main body of the report then gives a more detailed commentary, illustrated by summary tables and charts. The appendices contain details of response and a copy of the questionnaire. Copies of the full computer tabulations have been supplied separately.

# 1. CHARACTERISTICS OF DIVERS & SUPERVISORS

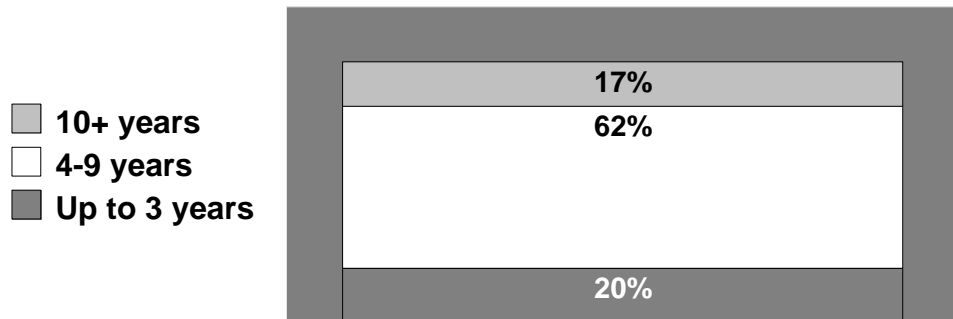
In this section we examine the characteristics of the divers and supervisor interviewed in the survey, in order to gain some understanding of who they are in terms of the length and breadth of diving experience they have. These factors may well be significant in influencing their opinions towards their working environment and the safety guidelines surrounding them.

## 1.1 LENGTH OF TIME QUALIFIED

The majority of divers interviewed in the survey are fairly experienced, having had their certificate qualifying them to dive on the UK continental shelf for several years. Eight out of ten divers interviewed have been qualified for four or more years.

**Chart 1a: Period since qualification**

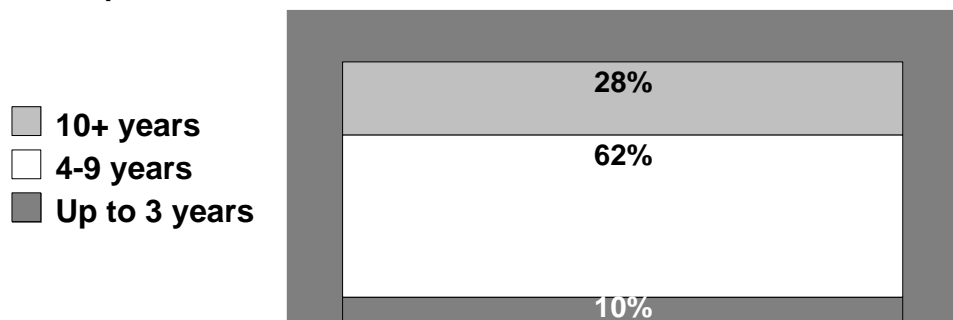
**Base: Divers**



Similarly, the vast majority of supervisors have several years of supervisory experience behind them, nine out of ten having been qualified to supervise for four or more years. They may not have supervised on the UK continental shelf all of this time, but, in order to qualify for the interview, they have at least done supervisory work in this area in the last three years.

**Chart 1b: Length of experience as a supervisor**

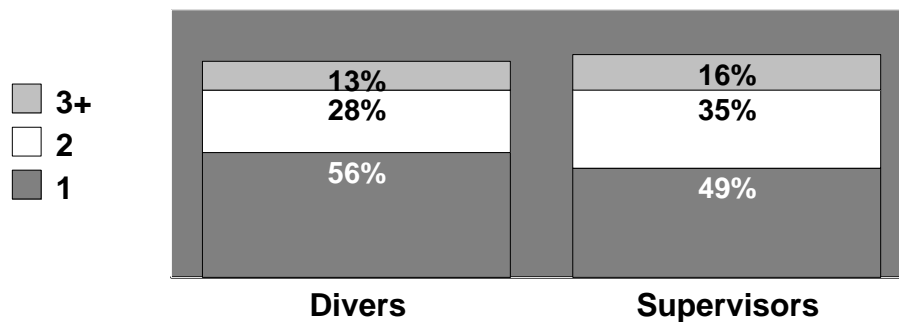
**Base: Supervisor**



## 1.2 EXPERIENCE OF DIFFERENT CONTRACTOR COMPANIES

Over the last three years, there has been relative stability of employment in terms of the number of different contractor companies worked for, both among divers and supervisors. Some do have broader experience, but around half have worked for just one contractor company over this three year period.

**Chart 1c: Number of companies worked for in UK sector in the last 3 years**



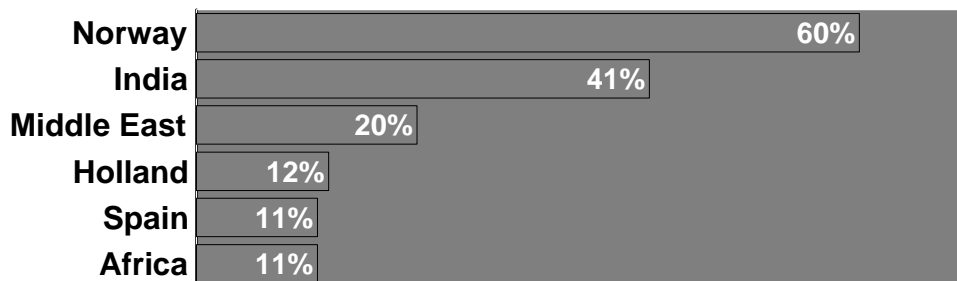
### 1.3 EXPERIENCE OF WORKING ABROAD

Most divers and nearly all supervisors interviewed in the survey have, at some time, worked outside the UK. Only one quarter of divers and 2% of supervisors have **only** dived in the UK. Of those who have worked overseas, almost a half say that over the last three years, **most** of their diving has been within the UK.

The two main overseas countries divers have worked in are Norway and India. The Middle East, Holland, Spain and Africa also feature but to a lesser extent.

**Chart 1d: Main other countries where divers have worked**

**Base: Divers with experience abroad (273)**



Among supervisors, experience of other countries follows much the same pattern, although supervisors seem to have had slightly more experience of working in South America, Denmark, Mexico and S.E. Asia.

## 1.4 SUMMARY OF EXPERIENCE

Most divers and supervisors have a wide **variety** of experience, having worked for different contractor companies and in both the UK and other countries, where conditions are potentially quite different.

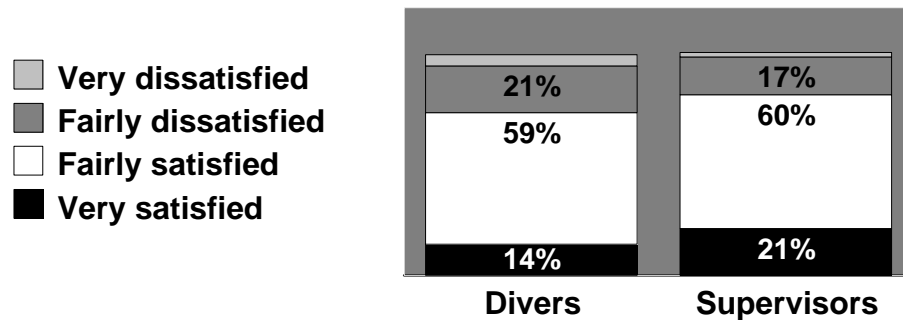
When we investigate the **attitudes** of both divers and supervisors towards their working conditions and the guidelines surrounding these, it will be useful to bear in mind the experience upon which opinions are likely to be based.



## 2. OVERALL SATISFACTION WITH THE CURRENT GUIDELINES

Towards the end of the interview, after having explored attitudes to guidelines on specific patterns of working, we asked divers to say how satisfied they were overall with the current UK safety guidelines.

**Chart 2a: Overall satisfaction with current UK safety guidelines**



Overall, there is a very **high** level of satisfaction with the current guidelines, both among divers and, to an even greater extent, among supervisors. Seven out of ten of divers and eight out of ten of supervisors are either very or fairly satisfied. The majority of these are "fairly" satisfied rather than "very", so although there is very **little** strong feeling **against** the current guidelines, there are clearly some reservations. Later sections of this report will explore these in some detail.

### 2.1 COMPARISON OF THE UK WITH OTHER COUNTRIES

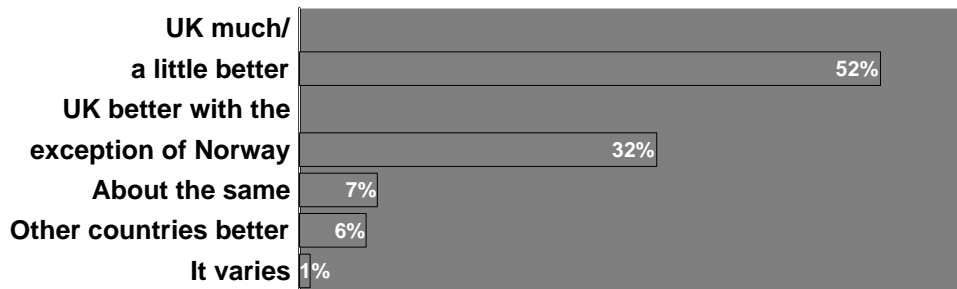
Divers with experience of working overseas (about three quarters of all divers) were asked to say how they viewed the UK guidelines in comparison with other countries.

The UK compares very favourably, with over half of these divers saying the UK safety guidelines are much or a little better than those elsewhere. Some divers singled out Norway, saying that they felt the UK to be generally better than other countries, except for Norway.

This view is held by 32% of divers with experience abroad, rising to 44% of divers with actual experience of the Norwegian system. Although this is a considerable proportion, it is worth noting that it still does **not** represent a **majority** preference; even among those who have dived in Norway, the proportion preferring the Norwegian system of working is still less than a half. It is important therefore not to place too much emphasis on preference for this system.

**Chart 2b: Comparison of UK diving safety regulations with other countries**

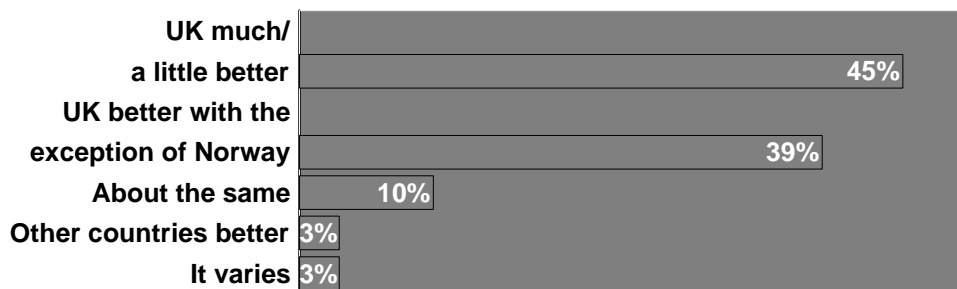
**Base: Divers with experience abroad (273)**



Opinions among supervisors are very similar, with 45% considering the UK guidelines to be much or a little better than those elsewhere and a substantial proportion - but not a majority - expressing a preference for the pattern of working in Norway.

**Chart 2c: Comparison of UK diving safety regulations with other countries**

**Base: Supervisors with experience abroad (62)**



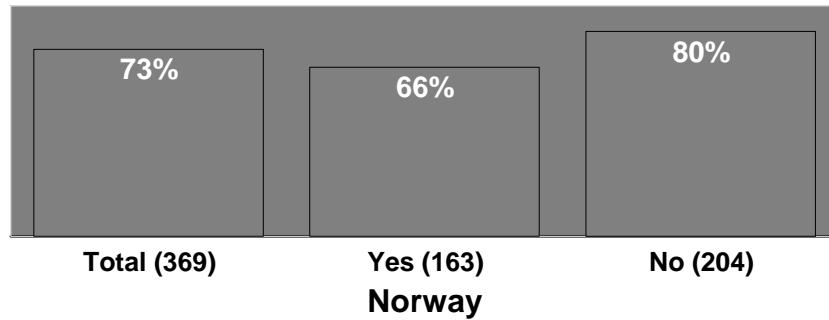
**2.2 EFFECT ON OVERALL SATISFACTION OF WORKING IN NORWAY**

Chart 2d demonstrates that overall satisfaction with the UK guidelines varies according to whether or not divers have experience of having worked in Norway. We have already observed that some divers have favourable opinions towards the system of working in Norway and would expect this to influence their overall level of satisfaction with the guidelines in this country. Indeed, the overall level of satisfaction with the UK guidelines falls from 73% to 66% among those with experience of Norway and rises to as high as 80% among those who have not dived in Norway. The difference between 66% and 80% is statistically significant at the 95% level of confidence. In other words there is only a 1 in 20 chance that we are wrong in drawing this conclusion.

**Chart 2d: Satisfaction by whether or not have experience of Norwegian system**

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**Base: Divers**



The base sizes for supervisors are rather small when broken down into subgroups. The **pattern** of response among supervisors however, shows much the same picture as we see for divers.

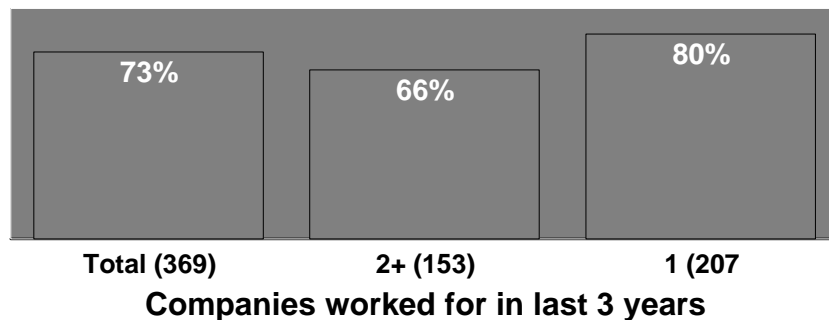
### **2.3 EFFECT ON OVERALL SATISFACTION OF WORKING FOR 2+ CONTRACTORS**

Chart 2e shows that satisfaction with the UK guidelines also varies according to the number of different contractor companies a diver has worked for. Divers who have experience of working for two or more contractors are less satisfied overall than are those who have only worked for one contractor company. The difference in levels of overall satisfaction is again statistically significant.

**Chart 2e: Satisfaction by number of contractors worked for**

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**Base: Divers**



## 2.4 EFFECT ON OVERALL SATISFACTION OF LENGTH OF DIVING EXPERIENCE

Length of experience is another factor that contributes to divers' overall feelings of satisfaction. The longer divers have been qualified, the less satisfied they tend to be; perhaps because they have had greater opportunity for 'bad' experiences.

**Table 2f: Satisfaction by length of experience**

**Base: Divers**

	Date qualified			
	Total	1988	1980-1987	Pre 1980
	%	%	%	%
Very/fairly satisfied	73	76	74	68

## 2.5 SUMMARY

Greater length of experience, experience of working in Norway and working for two or more contractors are all influential factors on divers' attitudes towards the guidelines, leading to a rather lower level of overall satisfaction. These factors are all inter-related; however this does not totally account for the differences that we observe, and we can conclude that they are **all** important factors, contributing to how satisfied divers are likely to feel.

Generally, there is a very **high** level of satisfaction with the current guidelines both among divers and - to an even greater extent - among supervisors, and the UK is thought to compare very favourably with other countries.

### 3. THE DETAILED FINDINGS

In this section of the report we examine in some detail the attitudes of divers and supervisors to the current guidelines for working the two man and the three man bell. We begin by looking at divers' and supervisors' experience of and preference for working in each of these types of bell.

#### 3.1 USUAL AND PREFERRED PATTERN OF WORKING

Both divers and supervisors were asked whether they usually worked a two man or a three man bell. Table 3a shows that the majority (around three fifths) of both divers and supervisors usually work a three man bell.

**Table 3a: Usual bell run**

**Base: All respondents**

	Divers	Supervisors
	369	63
	%	%
2 man	25	14
3 man	60	59
Both equally	15	27

A further quarter of divers usually work a two man bell and a quarter of supervisors claim to supervise both runs equally.

Having established bell run **experience**, we asked those with experience of **both** types which they preferred working. As Table 3b shows, there is no obvious preference among divers for working one particular type of bell run rather than another, similar proportions preferring the two man and the three man respectively. Supervisors, on the other hand, clearly prefer to supervise the three man bell run. We discuss the reasons for this preference later on.

**Table 3b: Preferred bell run**

**Base: All with experience of both 2 man and 3 man bells**

	Divers	Supervisors
	300	56
	%	%
Prefer two man	44	21
Prefer three man	40	55
No preference	14	20

Table 3c shows that the majority of divers are content to work the run in which they normally dive.

**Table 3c: Preferred bell run by type usually dive**

**Base: Divers with experience of both 2 man and 3 man bell**

	Usually dive		
	Total	2 man	3 man
	300	67	178
	%	%	%
Prefer 2 man	44	64	32
Prefer 3 man	40	21	53
No preference	14	13	11

Nearly two thirds of those who usually work a two man bell say that they prefer this pattern of working, with just one in five indicating a preference for a three man bell. Amongst those who normally work a three man bell, over half are content with this pattern, although a third say that they would prefer to work a two man bell.

We then asked divers to give reasons for their preferences. The reasons given by those preferring the **two** man bell are shown in Table 3d. They are all spontaneous comments.

**Table 3d: Main reasons for preferring the two man bell**

**Base: Divers who prefer the two man bell**

	Total
	131
	%
Comfort in bell	62
Time in water	42
General safety	25
Two divers in water difficult to save	18

Comfort in bell (ie. spaciousness) is the main reason given by those preferring the two man bell.

Two fifths appreciate the shorter lock-out time (4 hours) associated with the two man bell. A quarter are concerned with general aspects of safety and see the two man bell as the safer option. Around one in six specifically mention the fact that the three man bell run is **less** safe because it can be difficult to save **two** men in water if there are difficulties.

Table 3e shows how divers preferring the **three** man bell run explained their preference.

**Table 3e: Main reasons for preferring the three man bell**

**Base: Divers who prefer the three man bell**

	Total
	120
	%
Safer having two divers in the water	31
General safety	28
Productivity	22
Comfort in the bell	16
Workload	16

The reasons for preferring the three man bell are quite different from those for the two man bell. Whereas comfort in the bell was the over-riding reason behind preference for the two man bell, **safety** is clearly the key issue concerning those who prefer the three man bell. Nearly a third focus on the fact that, with two divers in the water, help is more immediate should one diver get into difficulty. Over a quarter mention more general safety issues.

Comfort in the bell is mentioned here but by a considerably smaller proportion (16%) than for those preferring the two man bell (62%). Although the bell for three men is physically larger than the bell for two men, one assumes that it can become quite cramped when all three divers are inside it.

A fifth said that they prefer the three man bell because the pattern of work is more productive. One in six said that the work load is easier to cope with in a three man bell, when two men are in the water at the same time. This is because they can help each other with certain tasks and they find this particularly useful if the job involves heavy construction work.

We asked supervisors the same question about their reasons for their preferred bell. As we have already seen, supervisors show a strong preference for supervising three man bells. Table 3f shows the reasons given for this.

**Table 3f: Main reasons for preferring the three man bell**

**Base: Supervisors who prefer the three man bell**

	Total
	31
	%
Productivity	65
Safer having two divers in the water	48
General safety	35
Workload	23
Comfort in the bell	10

Although the base of supervisors who qualified for this question is very small (31), and these data have therefore to be treated with some caution, they do seem to indicate quite clearly how supervisors' priorities and perceptions differ from those of the divers.

The most immediate difference is that **productivity** is the major area of concern amongst supervisors. This is perhaps not so surprising, owing to the nature of a supervisor's job; the divers they supervise must be productive and the three man bell is perceived as being the more productive system of working. While safety issues could be said to take second place to productivity, supervisors are nevertheless aware of the safety benefits of the three man bell.

In conclusion, the **three** man bell is the run more usually worked, by both divers and supervisors. Divers tend to prefer working the bell run in which they usually dive, while supervisors show a clear preference for supervising **three** man bell runs. Divers preferring a two man bell run say that this is because the bell is more comfortable. Divers preferring the three man bell run say that this is because of issues of safety. Increased productivity is the over-riding reason why a majority of supervisors prefer the three man bell, although safety issues **are** of concern.

### 3.2 AWARENESS OF CURRENT GUIDELINES

We move on now to concentrate on divers' and supervisors' specific awareness of and attitudes to the current guidelines. Table 3g shows awareness of the current recommended guidelines for working a two man bell.

**Table 3g: Awareness of guidelines: Two man bell**

**Base: All respondents**

		Diver	Supervisors
		369	63
		%	%
Run time	(8 hrs)	84	94
Lock-out time	(4 hrs)	80	94

It is reassuring to see that there is high awareness of these guidelines amongst both divers and supervisors, and that supervisors' awareness is particularly high.

Awareness of the current recommended guidelines for working the three man bell is somewhat lower, as Table 3h shows.

**Table 3h: Awareness of guidelines: Three man bell**

**Base: All respondents**

		Diver	Supervisors
		369	63
		%	%
Run time	(8 hrs)	61	73
Lock-out time:			
- 2 divers lock-out	(6 hrs)	66	73
- all 3 divers lock-out	(4 hrs)	53	71

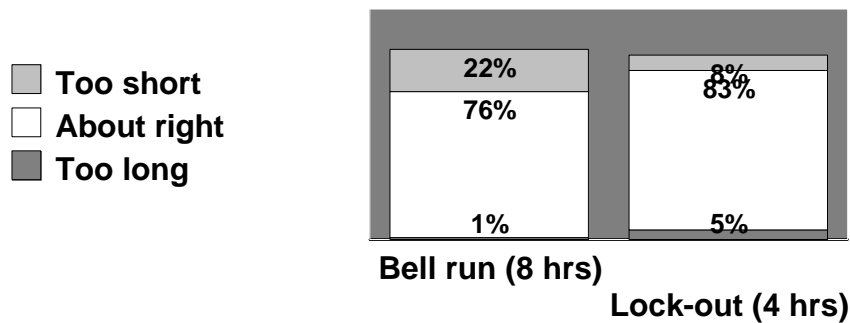
While the pattern of awareness is similar to that for the two man bell, with supervisors being more aware of current guidelines than divers, overall confusion **does** exist as to what these guidelines are. We hypothesise that there are perhaps two factors contributing to this confusion; firstly, the relative **complexity** of the three man bell, with its different lock-out scenarios and secondly, it might be the case that different contractor companies **vary** the run and lock-out times actually worked on a three man bell.

### 3.3 ATTITUDES TO CURRENT GUIDELINES

Once awareness of the guidelines has been assessed, we confirmed with respondents what the guidelines do in fact actually state, and we then asked, for each aspect of the guidelines, whether the recommended time was thought to be too long, too short or about right. Chart 3i shows how divers feel about the guidelines on the two man bell.

**Chart 3i: Attitudes towards current guidelines on 2 man bell**

**Base: Divers**

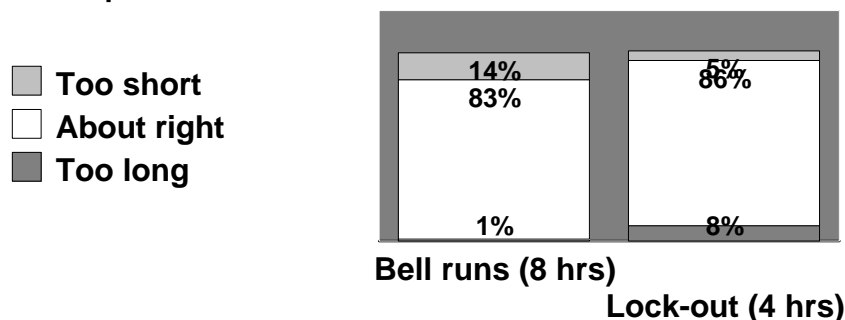


It is reassuring to see that the majority of divers are happy with the current guidelines. Over three quarters feel the 8 hour run time is about right and five in six are happy with the 4 hour lock-out. The only slight area of concern is the fact that just over a fifth of divers do feel that an 8 hour run is too long. This rises to almost a third amongst those divers who have qualified since 1988.

Chart 3j shows how **supervisors** feel about the current guidelines on the two man bell.

**Chart 3j: Attitudes towards current guidelines on the two man bell**

**Base: Supervisors**



The views of supervisors are very similar to those of divers, although they are if anything, even more favourable.

We then asked the small minority of divers who felt that an 8 hour run was too long, to explain their concerns. Table 3k shows the reasons they gave, and once again, we did not prompt them; the reasons given were all spontaneous comments.

**Chart 3k: Concerns about the two man bell run time**

**Base: Divers who feel the run time is too long**

	TOTAL
	80
	%
Fatigue/exhaustion	40
Safety	19
Decrease in productivity	15
Bellman tired/wet	9
Need refreshment break	9

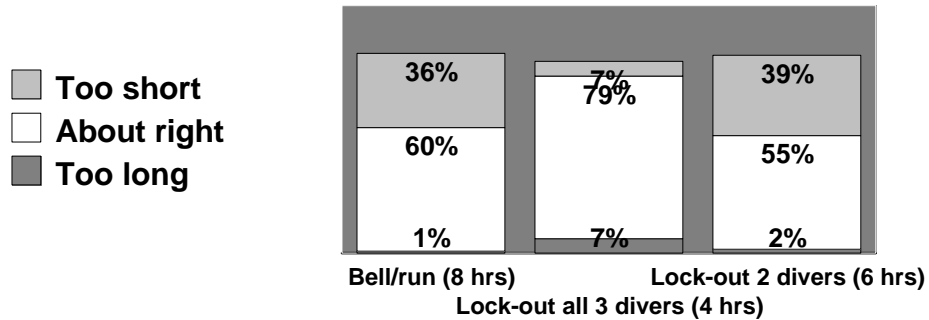
With two fifths mentioning **fatigue**, this is obviously the main cause for concern. Exhaustion, both mental and physical, obviously impinges upon the **safety** aspect of the job, mentioned by a fifth and **productivity**, mentioned by almost one in six.

Generally, however, there is a high level of satisfaction with the current guidelines on the length of the two man bell run.

We then repeated the same set of questions, this time assessing attitudes to the **three man bell**. Chart 3l shows that there is rather less satisfaction in this area.

**Chart 3l: Attitudes towards current guidelines on the three man bell**

**Base: Divers**

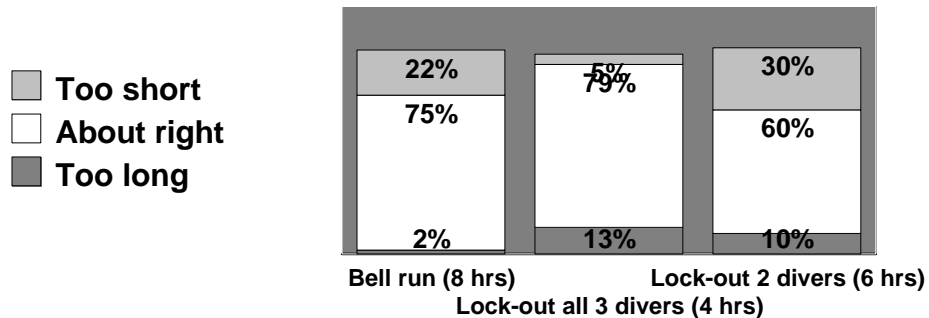


While it is important to bear in mind that over half of divers **are** happy with the current guidelines surrounding the three man bell, dissatisfaction is significantly higher than it was for the two man bell. Over a third of divers feel that an 8 hour bell run is too long in the three man bell. Similarly, a 6 hour lock-out (and this is the more usual pattern of working from a three man bell) is viewed by two in five as being too long.

Supervisors, too, are less happy with the guidelines surrounding the three man bell, as Chart 3m shows.

**Chart 3m: Attitudes towards current guidelines on the three man bell**

**Base: Supervisors**



We asked divers to explain their concerns about working an 8 hour run and a 6 hour lock-out from the three man bell.

**Table 3n: Concerns about the three man bell**

**Base: Divers who feel run/lock-out times are too long**

	8 hour run 132 %	6 hour lock-out 144 %
Fatigue/exhaustion	34	44
Safety	17	17
Decrease in productivity	14	19
Need refreshment break	5	9

As Table 3n shows, the major area of concern is fatigue. General safety and concern about declining productivity are also cited as reasons for thinking the recommended times are too long. All these issues are of course related, and the picture we are seeing here is very similar to that seen earlier for the two man bell (Table 3k).

It seems therefore, that while there **is** widespread satisfaction with the current guidelines on both the two man **and** the three man bell, the length of the run/lock-out is sometimes a cause for concern. Those who sometimes feel that the current times are too long say that the length of the lock-out or the run can lead to mental fatigue, physical exhaustion and a decline in safety standards. This is a view more likely to be expressed about the three man bell, and by divers rather than supervisors.

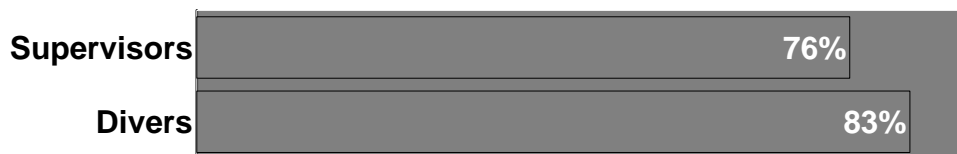
The following charts summarises the data that we have already seen.

From Chart 3o we can see that, while a majority of both divers and supervisors are happy with the current recommended guidelines for **run** times, divers are somewhat less content than are supervisors.

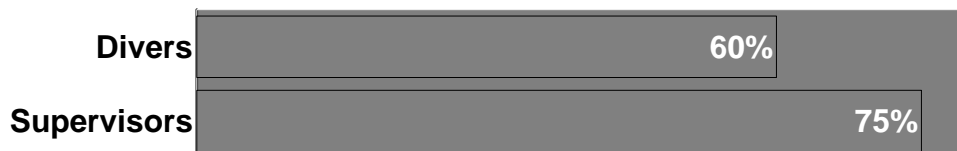
**Chart 3o: Views on run times**

**Base: % Thinking recommended time is about right**

**2 Man (8 hrs)**



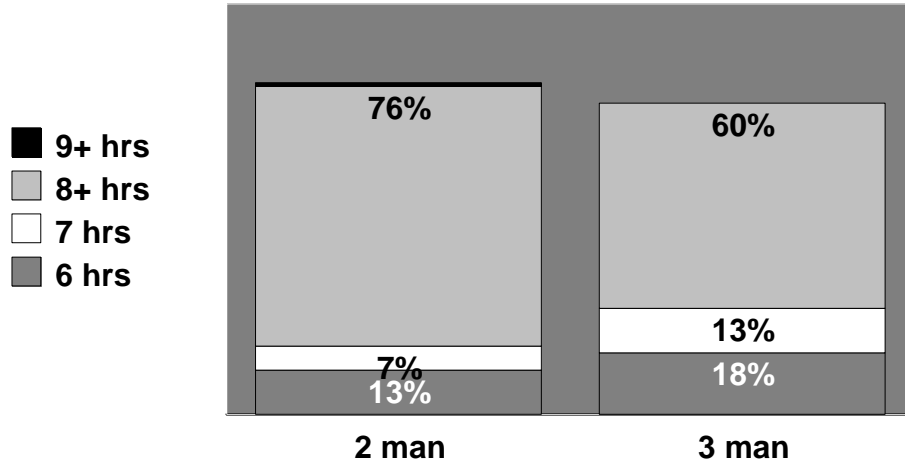
**3 Man (8 hrs)**



Respondents who were **not** content with the current guidelines were asked what they thought the run times **should** be:

**Chart 3p: Views on what run times should be**

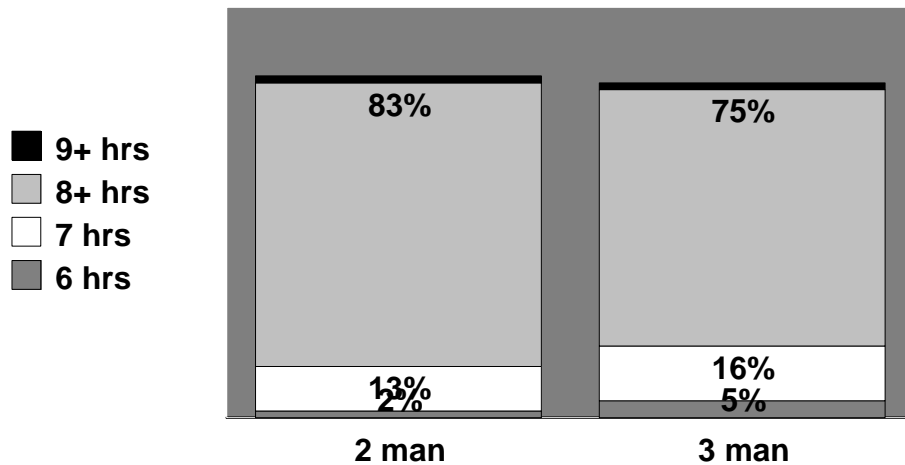
**Base: Supervisors**



Amongst divers, there is **some** feeling that run times ought to be shortened to 7 or even 6 hours long.

**Chart 3q: Views on what run times should be**

**Base: Supervisors**



Supervisors who are unhappy with an 8 hour run are more likely to favour a 7 hour run as an alternative.

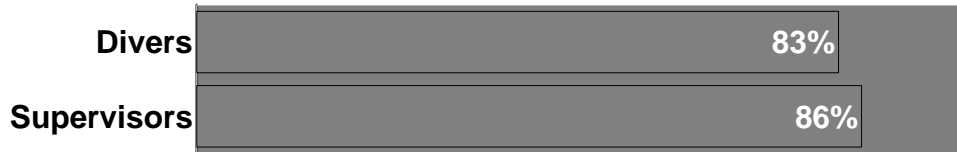
The following charts examine in a similar way, the research findings relating to **lock-outs**.

Chart 3r shows that divers' and supervisors' views on the current guidelines on lock-out times are broadly similar, and very favourable, **except** towards the six hour lock-out from a three man bell, when one diver remains dry throughout, where there does seem to be considerable dissatisfaction.

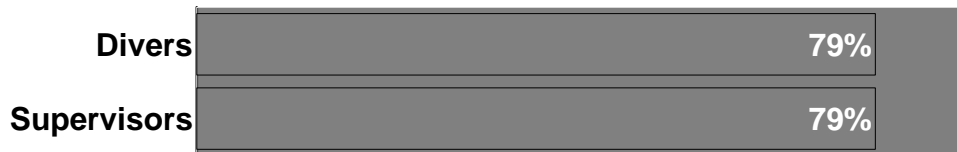
**Chart 3r: Views on lock-out times**

**Base: % Thinking recommended time is about right**

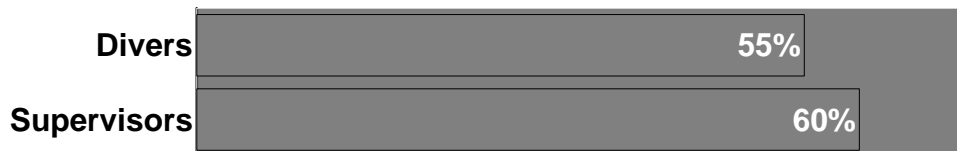
**2 Man (4 hrs)**



**3 Man (4 hrs)**



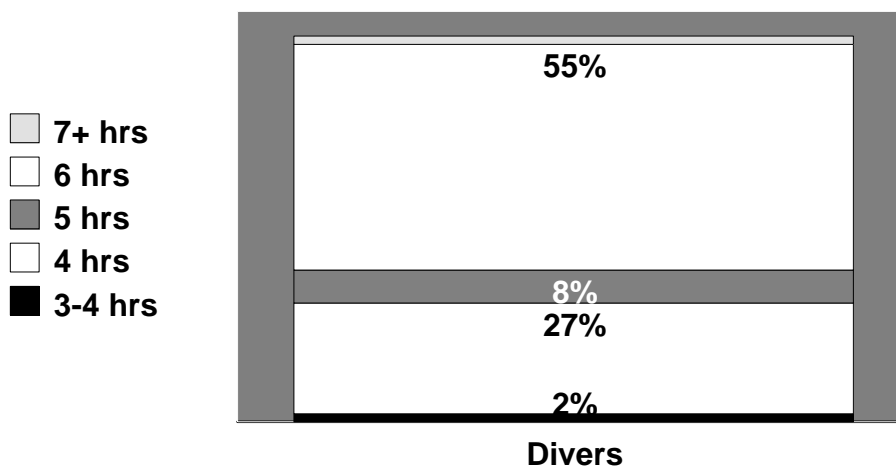
**3 Man (6 hrs)**



As Chart 3s shows, there is a strong feeling amongst those unhappy with the current guidelines that the lock-out times should only be 4 hours from a three man bell, even with one diver staying dry.

**Chart 3s: What lock-out times should be - Three man bell when one man stays dry**

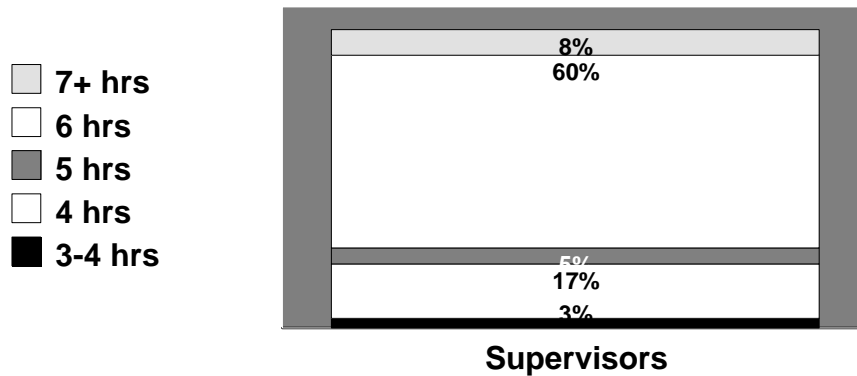
**Base: Divers**



Similarly, supervisors show some tendency to feel that the lock-out should only be 4 hours, although this feeling is less marked among supervisors than it is among divers.

**Chart 3t: What lock-out times should be - Three man bell when one man stays dry**

**Base: Supervisors**



There is overall satisfaction with the current recommended guidelines on both bell run and lock-out times. Those dissatisfied to feel runs/lock-outs should be shorter. Over a quarter (27%) of divers think that the lock-out time from a three man bell should be 4 hours, even where one diver remains dry throughout.

### 3.4 PREFERRED PATTERN OF WORKING WITHIN A THREE MAN BELL

All the findings up to this point would lead one to conclude that when divers were asked which pattern of working within a three man bell they preferred, they would opt for 4 hour lock-outs rather than 6 hour lock-outs. In fact, **the reverse was true** - there was a very clear preference for working 6 hour lock-outs, with one diver remaining dry as bellman. The same preference occurred among supervisors, to an even greater degree.

**Table 3u: Preferred pattern of working within a three man bell**

**Base: All respondents**

	Divers 369 %	Supervisors 63 %
6 hour lock-outs for 2 divers	71	78
4 hour lock-outs for 3 divers	25	20
No preference/Don't know	4	2

The findings suggest that, although there is a strong feeling that 6 hours in the water is too long, the issue of whether or not the bellman remains dry is of even greater importance.

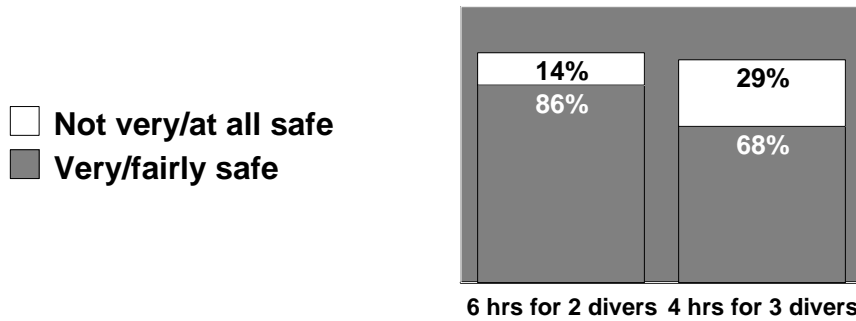
Before asked the question about preferred pattern of working within a three man bell, we explained the two different ways of working, emphasising that the bellman stayed dry in one and not in the other. We then asked divers how safe they thought each pattern was, again emphasising that the bellman stayed dry in one and not in the other. So this issue was brought to their minds just before they were asked to state their preference. It seems that, once brought to mind, staying dry as bellman is considered to be even more important than the 6 hours versus the 4 hours in the water.

This is a very important finding, some support for which is given below.

The responses to the question about the safety of each of the two patterns of working within a three man bell, are shown in Chart 3v.

**Chart 3v: Three man bells - Attitudes to safety**

**Base: Supervisors**

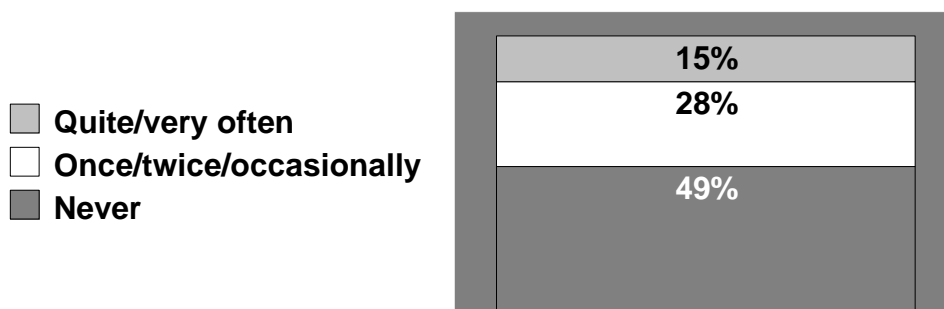


It is clear that the 6 hour lock-out for two divers where one diver stays dry all run is considered to be safer than 4 hour lock-outs where all three divers get wet. There is quite a noticeable, and statistically significant difference between the perceived safety of the two systems, with 86% and 68% respectively considering them to be very or fairly safe.

Chart 3w provides some justification for these attitudes towards the safety of the two different patterns of working. A total of 43% of divers admit that they have been too tired or cold to do their job as bellman after having been in water for 4 hours. 28% say that this has only happened once or twice but 15% admit to it happening quite or very often. This is quite a serious statement to make - and perhaps not one to be treated lightly. The job of bellman is obviously a very responsible one, demanding intense concentration, and the safety of the divers down below depends on this. For divers to suggest that they are not always up to performing this job properly, is a matter of concern. Furthermore, it is possible that the **actual** proportion of divers experiencing difficulties in performing the job is higher than these figures suggest; this is not something to which divers are likely to admit readily and we can therefore only assume that the figures shown here, if anything, slightly underrepresent the problem.

**Chart 3w: Too tired/cold to do job as bellman after 4 hour lock-out**

**Base: Divers**



It seems that if the **usual** pattern of working within a three man bell is 6 hour lock-outs for just two divers, this is no bad thing, and perhaps 6 hour lock-outs, keeping one man dry, is something which could be actively **encouraged** for **all** three man bell runs. It is certainly worth consideration.

### **3.5 SUMMARY**

The **three** man bell is the run more **usually** worked. Divers tend to prefer working the bell run that they are most used to, while supervisors show a clear preference for supervising **three** man bell runs.

Awareness of the guidelines is higher for the two man bell than it is for the three man bell and supervisors are more aware than divers.

There is general satisfaction with the current guidelines for both two man and three man bells. The main area of dissatisfaction is with the 6 hour lock-out in a three man bell when two divers lock-out and one diver stays dry.

However when asked directly, whether, in a three man bell, they prefer a 4 hour lock-out for all three divers or a 6 hour lock-out for just two divers, there is a very clear preference for the 6 hour lock-out. It is more important to divers that the bell man stays dry than that they have to spend 6 rather than 4 hours in the water.



## 4. DRY HABITATS

Our brief also asked us to investigate attitudes to the bell run time to a dry habitat. The base of respondents is reduced for these questions to those divers and supervisors who have experience of this type of work. The proportions who have **ever** done hyperbaric welding in a dry habitat and who have done such work in the last three years are given below.

**Table 4a: Preferred pattern of working within a three man bell**

	Divers %	Supervisors %
Ever	21	24
In the last 3 years	15	5

Only around one fifth of divers and one quarter of supervisors interviewed in the survey have ever performed work in a dry habitat. These proportions fall to just 15% and 5% who have done such work in the last three years.

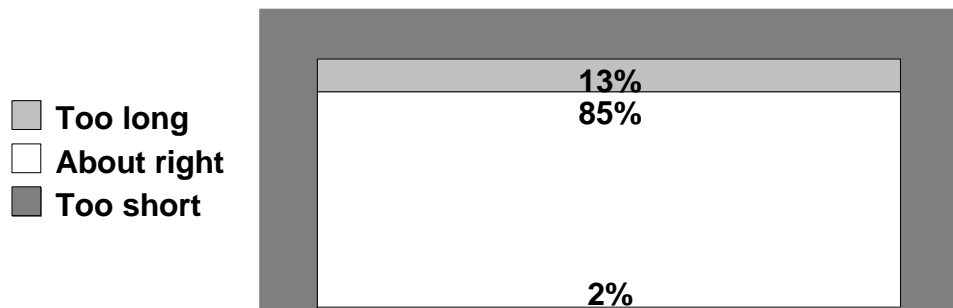
In terms of the average number of days worked in a dry habitat in the last three years, experience among those in our sample is really very limited, particularly among supervisors, with divers and supervisors having worked an average of 54 and 6 days respectively in dry habitats over this period.

In our analysis of attitudes towards this type of work, we shall limit discussion to divers only.

As before, we asked divers to say whether they thought the run time to a dry habitat was too long, too short or about right. Chart 4b shows that attitudes are generally very favourable, with 85% saying that they consider the maximum recommended time of 8 hours to be about right. Furthermore, half of these said that they thought extensions beyond 8 hours were acceptable (although we do not have any measure of how much beyond 8 hours).

**Chart 4b: Attitudes to bell run time for a dry habitat**

**Base: Divers who have done hyperbaric welding in last 3 years (54)**



The nature of the work in a dry habitat is obviously very different from that in water but we have not explored attitudes to this type of working in detail. In terms of the maximum recommended **run** time, it appears that divers do not have any problems with the guidelines as they are. There is no evidence of concern, although we do need to be cautious in our conclusions since the base of respondents is very low.

## 5. REFRESHMENT

Several questions about the guidelines surrounding refreshment breaks were asked at different stages throughout the questionnaire.

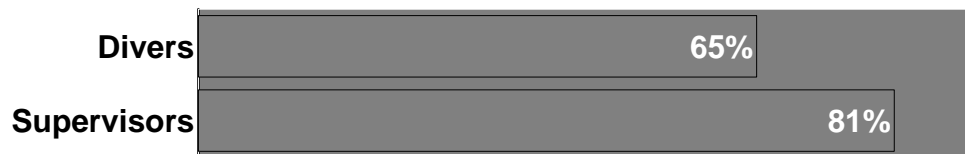
### 5.1 FAVOURABLE ATTITUDES

One such question asked divers and supervisors to state their level of agreement with the statement: "I feel divers get the breaks they need".

It appears from Chart 5a that attitudes are generally favourable, 65% of divers and 81% of supervisors agreeing that divers do not get the breaks they need.

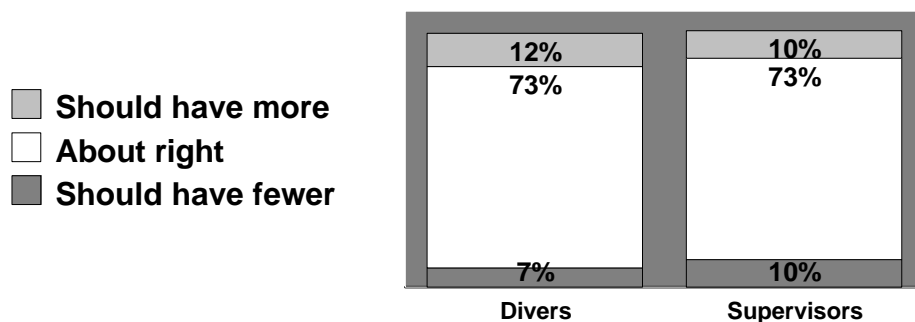
**Chart 5a: Attitudes to refreshment breaks**

**Feel divers get the breaks they need (% agree)**



Feelings towards the current guidelines which recommend having a refreshment break within the first 4 hours in the water during a 6 hour lock-out, are also favourable. Almost three-quarters of both divers and supervisors say that these guidelines are about right; those who feel they should have **more** breaks are almost compensated for by those who feel there should be **fewer**.

**Chart 5b: Feelings towards having a refreshment break in first 4 hours of a 6 hour lock-out**



Initial findings suggest, therefore, that reactions both to the recommendations for breaks and to the breaks actually received are very positive. However further questioning highlighted the fact that the situation is not completely clear cut and that there is in fact some cause for concern.

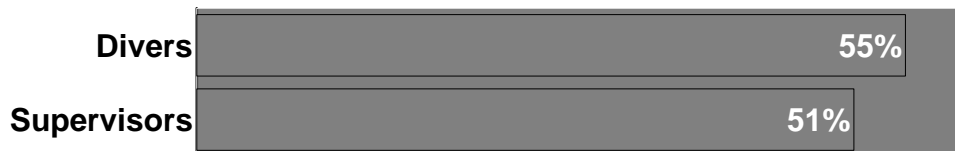
## 5.2 CAUSES FOR CONCERN

When asked whether they have ever felt a break was needed on a 4 hour lock-out, over a half of both divers and supervisors said they have sometimes felt it was necessary. The current guidelines do not make provision for a break during such a period.

Chart 5c:

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### Ever need break on 4 hour lock-out



---

During the pilot stage of interviewing, before the questionnaire had been finalised, the issue arose of divers sometimes feeling the need for a break but **not feeling they could actually ask for one**. We included a question to this effect in the final questionnaire, and response to this question was quite revealing. Over a half of divers admitted that they had at some time felt the need for a break but had not felt able to ask for one.

Chart 5d:

---

### Ever felt a break but couldn't ask for one



---

We are not able to **quantify** reasons for feeling this way, but **qualitative** evidence from comments made spontaneously by some divers and recorded verbatim by the interviewers, suggests that one of the main reasons is a fear of not appearing 'macho' enough:

*"There should be mandatory refreshment breaks. If you ask for one they think you're a wimp".*

There were also comments made to the effect that if you asked for a refreshment break you would risk not being offered more work in the future. This seemed to be of particular concern at a time when the divers seem to be fighting for as much work as they can get.

*Refreshment breaks are never offered. If you expect to have one, you won't get given more work".*

We also asked divers to say how much they agreed with the statement: "Sometimes I wish I didn't have to bother with a break". 45% of divers said they agreed with this statement.

Chart 5e:

---

### Sometimes wish didn't have to bother with a break (% agree)



This suggests that divers are **not** simply trying to obtain as many breaks from work as they can. In fact, it is quite often the case that they would prefer **not** to take a break at a particular time. Sometimes it is **more** trouble to come back up to the bell, particularly if the work the divers are doing is drawing very near to completion. In such instances it might seem that the guidelines need to be more flexible. This would however, put the onus back on to the divers to ask for breaks and, as we have seen, they may not always feel inclined to do this. Indeed, there is also evidence to suggest that rather than make the guidelines **more flexible**, some divers feel they should be **tightened up**.

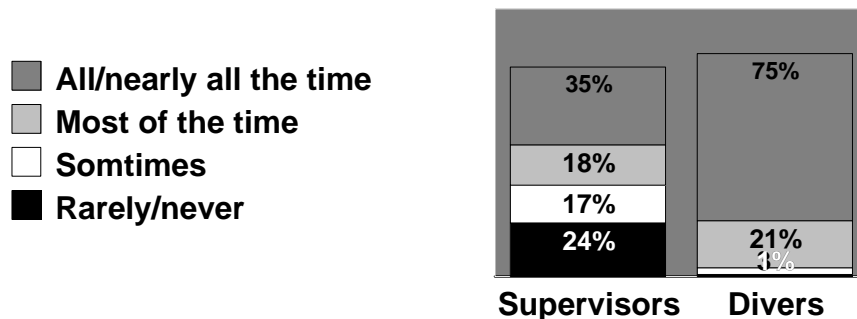
*"The recommendations should be made law".*

Finally, we asked divers and supervisors to say whether they felt that supervisors agree to breaks when they are needed. Chart 5f shows that there is some considerable difference here between the opinions of divers and supervisors.

Among divers, there are clear signs that this is a potential problem area; almost a quarter of divers said that supervisors **rarely** or **never** agree to breaks when they are needed. And even supervisors admit that they sometimes do not agree to breaks when really they should.

As many as one quarter of supervisors said that they **never**, **rarely** or only **sometimes** agree to the necessary breaks, and again this figure is likely to be deflated if anything, since some supervisors may not have given an honest answer to this rather sensitive question.

**Chart 5f: Whether feel supervisors agree to breaks when they are needed**



Supervisors are often under a lot of pressure to get jobs completed, particularly when working on lump sum contracts. We asked supervisors whether they had ever felt under pressure to ask divers to do too much within a bell run and three out of five said they had. There is also some qualitative evidence which supports this; a number of supervisors asked specifically to add their views regarding this very issue, and our interviewers recorded their comments verbatim. The following comments sum up what quite a number of supervisors seem to feel:

*"Pressure from project managers and superintendents is just dreadful".*

*"Too much pressure due to lump sum contracts. When a job has to be finished quickly, safety goes out the window".*

*"When I say we drive the drivers, I mean we drive them".*

### **5.3 SUMMARY**

Clearly, the whole area of refreshment breaks is one which requires some attention. Supervisors are often under immense pressure to complete jobs within the shortest time available and this means that they do not always offer breaks when they should. Divers, on the other hand, do not always ask for breaks when they need one, and thus the situation arises where divers are often working for long periods of time without a break. There clearly needs to be greater encouragement to work within the recommended safety guidelines. To make the guidelines law would be one option, however from the divers' point of view, it is also important that there remains some flexibility. The solution probably lies in changing the way of working so that (a) supervisors are more ready to offer breaks and (b) there is absolutely no penalty for divers who **ask** for breaks. Divers need to be made aware of this so that they are not afraid to ask. Divers should **never** allow themselves to continue working if they feel it is unsafe to do so.

## APPENDIX A

### ANALYSIS OF RESPONSE

Number of telephone numbers supplied (after de-duplication)	1,135
	100%
Full interviews	38%
Number unobtainable	23%
No reply/no successful contact/ not known/moved/died	18%
Respondent ineligible	13%
Respondent unavailable in fieldwork period	7%
Refusal	1%



**APPENDIX B**  
**THE QUESTIONNAIRE**



## DIVERS



**June 1991**

Divers

1 1 5 -17 0 2  
1/2/3/4/5/6/7

**Q.1.** Outcome of the call

- No reply 1.1
- Answerphone 2
- Engaged 3
- Number Unobtainable 4
- Appointment 5
- General call back 6
- Refusal 7
- No one in quota 8
- Not a residential number 9
- Respondent agrees 10
- Been contacted before 11

Q.2.
------

Good afternoon/evening, I'm from the British Market Research Bureau. We are doing a survey on behalf of the Department of Energy with the agreement and cooperation of the AODC and RMT amongst North Sea divers to find out their attitudes to a number of aspects of their work and especially about safety - it will only take about 15 minutes. All your answers will be strictly confidential, and your name will not be linked with anything you say

**Q.2.** So, firstly, can I just check what sort of saturation diving certificate you hold?  
IF NECESSARY READ OUT:

- HSE Part II 2.1
- NPD Bell Diver Certificate 2
- Transitional Certificate 3
- Other (TYPE IN) 4
- \_\_\_\_\_ 4
- Don't know 5

Q.4.
------

Q.3.  
CLOSE

IF 'OTHER' AT Q.2.

**Q.3.** Does this certificate allow you to do saturation diving on the UK continental shelf?

- Yes 3.1
- No 2
- Don't know 3

Q.4.
CLOSE

ASK ALL

**Q.4.** In which year did you get this certificate to qualify as a saturation diver?

- 1990 4.1
- 1989 2
- 1988 3
- 1985-1987 4
- 1980-1984 5
- Before 1980 6
- Don't know 7

Q.5.
------

**Q.5.** And have you done saturation diving on the UK continental shelf in the past three years, that is, in 1988, 1989 or 1990?

- Yes 3.1
- No 2
- Don't know 3

Q.6.

CLOSE
-------

**Q.6.** Approximately how many days in saturation have you done in the UK in the past year, that is in 1990?

PLEASE TYPE ANSWER INTO BOXES

- (Approx)
- |  |  |  |  |  |                |
|--|--|--|--|--|----------------|
|  |  |  |  |  | 6.             |
|  |  |  |  |  | Don't know 7.1 |

IF QUALIFIED BEFORE 1990 AT Q.4. ASK

**Q.7.** Now I'd like to ask you about the year before last, 1989. So about how many days in saturation did you do in the UK in 1989?

- |  |  |  |  |  |                |
|--|--|--|--|--|----------------|
|  |  |  |  |  | 8.             |
|  |  |  |  |  | Don't know 9.1 |

IF QUALIFIED BEFORE 1989 AT Q.4. ASK

**Q.8.** And what about 3 years ago, about how many days in saturation did you do in the UK in 1988?

- |  |  |  |  |  |                 |
|--|--|--|--|--|-----------------|
|  |  |  |  |  | 10.             |
|  |  |  |  |  | Don't know 11.1 |

ASK ALL

**Q.9.** How many companies have you worked for as a saturation diver in the UK sector in the last 3 years, that is in 1988, 1989 and 1990?  
TYPE IN

- |  |  |  |  |                 |
|--|--|--|--|-----------------|
|  |  |  |  | 12.             |
|  |  |  |  | Don't know 13.1 |

**Q.10.** Have you ever done any saturation diving outside the UK?

- Yes 14.1
- No 2
- Don't know 3

Q.11.

Q.14.
-------

IF 'YES' AT Q.10. ASK

**Q.11.** Where else have you done saturation diving?  
MULTICODING ALLOWED

- South America / Canada / USA 15.1
- Middle East 2
- Brunei / Sarawak / South East Asia 3
- Far East 4
- India 5
- Norway 6
- Mexico 7
- Spain 8
- Holland 9
- Other
- PLEASE STATE
- \_\_\_\_\_ 10
- \_\_\_\_\_ 11
- Don't know

Q.12.

**Q.12.** And how much of your saturation diving work in the last 3 years (since 1988) has been within the UK?  
READ OUT

- All 16.1
- Most of it 2
- About half 3
- Some of it 4
- Very little 5
- Don't know 6

Q.13.

IF QUALIFIED BEFORE 1988 AT Q.4.

**Q.13.** And thinking about all the time you have been saturation diving, about how much of your saturation diving work has been in the UK?  
READ OUT

- All 17.1
- Most of it 2
- About half 3
- Some of it 4
- Very little 5
- Don't know 6

Q.14.

ASK ALL

**Q.14.** Did you ever do any hyperbaric welding in a dry habitat offshore in the UK before 1988?

Yes	18.1	Q.15.
No	2	
Don't know	3	

**Q.15.** And have you done any hyperbaric welding in a dry habitat offshore in the UK in the last 3 years, that is, in 1988, 1989 or 1990?

Yes	19.1	Q.16.
No	2	Q.17.
Don't know	3	

IF 'YES' AT Q.15.

**Q.16.** About how many days have you worked in a dry habitat since 1988?  
TYPE IN

<table border="1" style="border-collapse: collapse; width: 100px; height: 20px;"> <tr> <td style="width: 25px; height: 20px;"></td> <td style="width: 25px; height: 20px;"></td> <td style="width: 25px; height: 20px;"></td> <td style="width: 25px; height: 20px;"></td> </tr> </table>					20.	Q.17.
Don't know	21.1					

ASK ALL

**Q.17.** In this interview I will be talking just about saturation diving and we are interested in your opinions on both bell run times and bell lock out times. So, firstly, thinking about bell runs, as you know there are both 2 man and 3 man bells. In which do you normally dive? Thinking about the UK in the last 3 years?

Only ever 2 man	22.1	Q.20.
Normally 2 man	2	Q.18.
Only ever 3 man	3	Q.20.
Normally 3 man	4	Q.18.
Both about the same	5	
Don't know	6	

IF BOTH AT Q.17.

**Q.18.** Which do you prefer - diving in a 2 man bell or in a 3 man bell?

2 man	22.1	Q.19.
3 man	2	
No preference	3	
Don't know	4	

**Q.19.** Why do you say that? PROBE:

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- |     |    |    |     |     |     |     |     |     |     |     |     |     |
|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 24. | 1, | 5, | 9,  | 13, | 17, | 21, | 25, | 29, | 33, | 37, | 41, | 45, |
|     | 2, | 6, | 10, | 14, | 18, | 22, | 26, | 30, | 34, | 38, | 42, | 46, |
|     | 3, | 7, | 11, | 15, | 19, | 23, | 27, | 31, | 35, | 39, | 43, | 47, |
|     | 4, | 8, | 12, | 16, | 20, | 24, | 28, | 32, | 36, | 40, | 44, | 48, |

ASK ALL

**Q.20.** Now, thinking just about 2 man bells, can you tell me what you think the current maximum recommended time for a 2 man BELL RUN is?

HOURS	MINS	25.
Don't know		26.1

**Q.21.** (In fact it's 8 hours). Do you think that this is too long, too short, or about right?  
(Explain if necessary: in general what do you think?)

- Too long 27.1
- Too short 2
- About right 3
- Depends on the job 4
- Don't know 5

(DON'T READ OUT)

Q.22.
Q.24.

IF 'TOO LONG' OR 'TOO SHORT' AT Q.21. ASK

**Q.22.** What do you think the maximum time should be for a 2 man bell run?

HOURS	MINS	28.
Don't know		29.1

**Q.23.** Why do you say that?

PROBE:

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- |     |    |    |     |     |     |     |     |     |     |     |     |     |
|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 30. | 1, | 5, | 9,  | 13, | 17, | 21, | 25, | 29, | 33, | 37, | 41, | 45, |
|     | 2, | 6, | 10, | 14, | 18, | 22, | 26, | 30, | 34, | 38, | 42, | 46, |
|     | 3, | 7, | 11, | 15, | 19, | 23, | 27, | 31, | 35, | 39, | 43, | 47, |
|     | 4, | 8, | 12, | 16, | 20, | 24, | 28, | 32, | 36, | 40, | 44, | 48, |

ASK ALL

**Q.24.** Now, thinking of the LOCKOUT time from a 2 man bell. Do you know what is the maximum recommended time a diver can be locked out from a 2 man bell when both men lock out in turn?

HOURS	MINS	31.
Don't know		32.1

**Q.25.** (In fact its 4 hours). Do you think that this is too long, too short, or about right when both men lock out?

(Explain if necessary: in general what do you think?)

- Too long 27.1
- Too short 2
- About right 3
- Depends on the job 4
- Don't know 5

(DON'T READ OUT)

Q.26.
Q.28.

IF 'TOO LONG' OR 'TOO SHORT' AT Q.25. ASK

**Q.26.** What do you think the maximum lockout time should be for a diver in a 2 man bell when both men lock out?

HOURS	MINS	
		34.
Don't know		35.1

**Q.27.** Why do you say that?

PROBE:

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- |    |    |    |     |     |     |     |     |     |     |     |     |     |
|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 36 | 1, | 5, | 9,  | 13, | 17, | 21, | 25, | 29, | 33, | 37, | 41, | 45, |
|    | 2, | 6, | 10, | 14, | 18, | 22, | 26, | 30, | 34, | 38, | 42, | 46, |
|    | 3, | 7, | 11, | 15, | 19, | 23, | 27, | 31, | 35, | 39, | 43, | 47, |
|    | 4, | 8, | 12, | 16, | 20, | 24, | 28, | 32, | 36, | 40, | 44, | 48, |

ASK ALL

**Q.28.** Now, thinking about 3 man bells, can you tell me what you think the current maximum recommended time for a 3 man bell run is?

HOURS	MINS	
		37.
Don't know		38.1

**Q.29.** (In fact its 8 hours). Do you think that this is too long, too short, or about right? (Explain if necessary: in general what do you think?)

- Too long 39.1
- Too short 2
- About right 3
- Depends on the job 4
- Don't know 5

(DON'T READ OUT)

Q.30.
Q.36.

IF 'TOO LONG' OR 'TOO SHORT' AT Q.29. ASK

**Q.30.** What do you think the maximum time should be for a 3 man bell run?

HOURS	MINS	
		40.
Don't know		41.1

**Q.31.** Why do you say that?

PROBE:

---



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42.      1,      5,      9,      13,      17,      21,      25,      29,      33,      37,      41,      45,  
           2,      6,      10,      14,      18,      22,      26,      30,      34,      38,      42,      46,  
           3,      7,      11,      15,      19,      23,      27,      31,      35,      39,      43,      47,  
           4,      8,      12,      16,      20,      24,      28,      32,      36,      40,      44,      48,

ASK ALL

**Q.32.** Now, thinking of the lockout time from a 3 man bell. Do you know what is the maximum recommended time a diver can be locked out from a 3 man bell when only two divers lockout and the third diver has a dry run?

HOURS	MINS					43.
Don't know						44.1

**Q.33.** (In fact its 6 hours). Do you think that this is too long, too short, or about right? (Explain if necessary: in general what do you think?)

(DON'T READ OUT)

- |                    |      |
|--------------------|------|
| Too long           | 45.1 |
| Too short          | 2    |
| About right        | 3    |
| Depends on the job | 4    |
| Don't know         | 5    |

Q.34.
Q.40.

IF 'TOO LONG' OR 'TOO SHORT' AT Q.37. ASK

**Q.34.** What do you think the maximum lockout time should be for a diver in a 3 man bell when 2 divers lockout and the third diver has a dry run?

HOURS	MINS					46.
Don't know						47.1

**Q.35.** Why do you say that?

PROBE:

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48.      1,      5,      9,      13,      17,      21,      25,      29,      33,      37,      41,      45,  
           2,      6,      10,      14,      18,      22,      26,      30,      34,      38,      42,      46,  
           3,      7,      11,      15,      19,      23,      27,      31,      35,      39,      43,      47,  
           4,      8,      12,      16,      20,      24,      28,      32,      36,      40,      44,      48,

ASK ALL

**Q.36.** Now, thinking of the lockout time for a 3 man bell. Do you know what is the maximum recommended time a diver can be locked out from a 3 man bell when all three divers have a lockout period?

HOURS	MINS	
		49.
		Don't know    50.1

**Q.37.** (In fact its 4 hours). Do you think that this is too long, too short, or about right?  
 (Explain if necessary: in general what do you think?)

- |                    |      |
|--------------------|------|
| Too long           | 51.1 |
| Too short          | 2    |
| About right        | 3    |
| Depends on the job | 4    |
| Don't know         | 5    |

(DON'T READ OUT)

Q.38.
Q.40.

IF 'TOO LONG' OR 'TOO SHORT' AT Q.37. ASK

**Q.38.** What do you think the maximum lockout time should be for a diver in a 3 man bell when all three divers have a lockout period?

HOURS	MINS	
		52.
		Don't know    53.1

**Q.39.** Why do you say that?

PROBE:

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- |     |    |    |     |     |     |     |     |     |     |     |     |     |
|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 54. | 1, | 5, | 9,  | 13, | 17, | 21, | 25, | 29, | 33, | 37, | 41, | 45, |
|     | 2, | 6, | 10, | 14, | 18, | 22, | 26, | 30, | 34, | 38, | 42, | 46, |
|     | 3, | 7, | 11, | 15, | 19, | 23, | 27, | 31, | 35, | 39, | 43, | 47, |
|     | 4, | 8, | 12, | 16, | 20, | 24, | 28, | 32, | 36, | 40, | 44, | 48, |

ASK ALL

**Q.40.** As you know, on a lock out the diving supervisor may under exceptional circumstances, extend the lock out by up to 30 minutes to complete a task if all the divers agree. Have you ever been asked to extend a lock out by up to 30 minutes?

Yes	55.1	Q.41.
No	2	Q.45.
Don't know	3	

IF 'YES' AT Q.40.

**Q.41.** Have you ever been asked to extend a 4 hour lockout period when you didn't feel that it was safe?

Yes	56.1	Q.42.
No	2	Q.43.
Don't know	3	

IF 'YES' AT Q.41.

**Q.42.** How often has this happened on a 4 hour lockout? Is it ..... (READ OUT)

	Only once or twice	56.1	Q.43.
	Occasionally	2	
	Quite often	3	
	OR Very often	4	
	Don't know	5	

DO NOT READ OUT

**Q.43.** Have you ever been asked to extend a 6 hour lockout period when you didn't feel that it was safe?

Yes	58.1	Q.44.
No	2	Q.45.
Don't know	3	

IF 'YES' AT Q.43.

**Q.44.** How often has this happened on a 6 hour lockout? Is it ..... (READ OUT)

- Only once or twice      59.1
- Occasionally              2
- Quite often                3
- OR Very often            4
- Don't know                5

DO NOT READ OUT

Q.45.
-------

ASK ALL

**Q.45.** Now I'd like you to think about the pattern of working in a 3 man bell. One pattern of working is for 2 divers to have up to 6 hour lockouts while the third diver remains dry and is bellman for the whole bell run. In the last 3 years, that is since 1988, how many bell runs have you done with this pattern of working? Is it ..... (READ OUT)

- All or nearly all your bell runs      60.1
- About three quarters or more        2
- About half                                3
- About a quarter                        4
- Less than a quarter                    5
- None                                        6
- Don't know                               7

Q.46.
-------

**Q.46.** How safe do you think this pattern of working is, with 2 divers doing 6 hour lockouts, and the third diver staying dry as bellman? (READ OUT)

- Very safe                                61.1
- Fairly safe                               2
- Not very safe                            3
- Not at all safe                         4
- Don't know                               5

Q.47.
-------

**Q.47.** Another pattern of working in a 3 man bell is for each diver to have a lockout of up to 4 hours. In this situation, a diver will be bellman for 4 hours after having just done a lockout period of 4 hours. In the last 3 years, since 1988, how many bell runs have you done with this pattern of working? Is it ..... (READ OUT)

- All or nearly all your bell runs      62.1
- About three quarters or more        2
- About half                                3
- About a quarter                        4
- Less than a quarter                    5
- None                                        6
- Don't know                               7

Q.48.
-------

**Q.48.** How safe do you think this pattern of working is, with each diver doing lockouts of up to 4 hours and one diver then acting as bellman immediately after his lockout? (READ OUT)

- Very safe                                63.1
- Fairly safe                               2
- Not very safe                            3
- Not at all safe                         4
- Don't know                               5

Q.49.
-------

**Q.49.** In your experience, after a lockout of 4 hours, have you ever felt that you were too tired or cold to do your job as a bellman  
 IF YES: Is that ..... (READ OUT)

- |                 |                                         |      |
|-----------------|-----------------------------------------|------|
|                 | Only once or twice                      | 64.1 |
|                 | Occasionally                            | 2    |
|                 | Quite often                             | 3    |
|                 | OR Very often                           | 4    |
| DO NOT READ OUT | No, never felt too tired                | 5    |
|                 | Never been bellman after 4 hour lockout | 6    |
|                 | Don't know                              | 7    |

Q.50.
-------

**Q.50.** Overall, which pattern of working in a 3 man bell would you prefer - 6-hour lockouts for 2 divers with one man as dry bellman for the whole run, or 4-hour lockouts for each of the 3 divers?

- |                               |      |
|-------------------------------|------|
| 6 hour lock outs for 2 divers | 65.1 |
| 4 hour lockouts for 3 divers  | 2    |
| No preference                 | 3    |
| Don't know                    | 4    |

Q.51.
-------

**Q.51.** Now I'd like you to think about a 2 man bell. One possible pattern of working with a 2 man bell is for one diver to have a lockout of up to 6 hours, while the other diver remains dry and is bellman for the whole bell run and then vice versa for the next bell run. In the last 3 years, that is since 1988, how many bell runs if any have you done with this pattern of working? Is it ..... (READ OUT)

- |                                  |      |
|----------------------------------|------|
| All or nearly all your bell runs | 66.1 |
| About three quarters or more     | 2    |
| About half                       | 3    |
| About a quarter                  | 4    |
| Less than a quarter              | 5    |
| None                             | 6    |
| Don't know                       | 7    |

Q.52.
-------

**Q.52.** How safe do you think this pattern of working is in a 2 man bell, with one diver locking out for 6 hours, and the other diver staying dry as bellman and then vice versa? (READ OUT)

- |                 |      |
|-----------------|------|
| Very safe       | 67.1 |
| Fairly safe     | 2    |
| Not very safe   | 3    |
| Not at all safe | 4    |
| Don't know      | 5    |

Q.53.
-------

**Q.53.** Now I'd like to ask you about refreshment breaks, first of all for 6 hour lock outs. The current guidelines specify at least one refreshment break within the first 4 hours. Do you think this is about right, or do you think you should have more or fewer refreshment breaks?  
 (IF NECESSARY: Assuming the work is not particularly tiring)

- |                   |      |
|-------------------|------|
| About right       | 68.1 |
| Should have more  | 2    |
| Should have fewer | 3    |
| Don't know        | 4    |

Q.54.
-------

**Q.54.** With a 4 hour lockout, have you ever felt the need for a refreshment break?

Yes	69.1	Q.55.
No	2	Q.56.
Don't know	3	

IF 'YES' AT Q.54.

**Q.55.** How often has this happened? Is it ..... (READ OUT)

Only once or twice	71.1	Q.56.
Occasionally	2	
Quite often	3	
OR Very often	4	
Don't know	5	

DO NOT READ OUT

ASK ALL

**Q.56.** Have you ever needed a refreshment break but felt that you couldn't ask for one?

Yes	71.1	Q.57.
No	2	
Don't know	3	

**Q.57.** In your experience, would you say that supervisors agree to refreshment breaks when they are needed ..... READ OUT?

All the time or nearly all the time	72.1	Q.58.
Most of the time	2	
Sometimes	3	
Rarely	4	
OR Never	5	
Don't know	6	

DO NOT READ OUT

**Q.58.** Now I am going to read out to you some statements about safety at work for divers. For each one I read out, please tell me whether you agree or disagree with it. So, do you agree or disagree that "The guidelines need to be more flexible"? Is that agree/disagree a lot or a little?

Agree a lot	73.1	Q.59.
Agree a little	2	
Disagree a little	3	
Disagree a lot	4	
Don't know	5	

**Q.59.** And do you agree or disagree that ... "By the end of a 6 hour lockout I'm often exhausted"? Is that agree/disagree a lot or a little

Agree a lot	74.1	Q.60.
Agree a little	2	
Disagree a little	3	
Disagree a lot	4	
Don't know	5	

**Q.60.**    And do you agree or disagree that ... "I sometimes wish I didn't have to bother with a refreshment break"

Is that agree/disagree a lot or a little

- Agree a lot    75.1
- Agree a little    2
- Disagree a little    3
- Disagree a lot    4
- Don't know    5

Q.61.
-------

**Q.61.**    And do you agree or disagree that ... "I sometimes feel that the bellman is too tired to be of much use"

Is that agree/disagree a lot or a little

- Agree a lot    76.1
- Agree a little    2
- Disagree a little    3
- Disagree a lot    4
- Don't know    5

Q.62.
-------

**Q.62.**    And do you agree or disagree that ... "When I'm in the middle of a job I sometimes wish that the lockout time could be longer"

Is that agree/disagree a lot or a little

- Agree a lot    77.1
- Agree a little    2
- Disagree a little    3
- Disagree a lot    4
- Don't know    5

Q.63.
-------

**Q.63.**    And do you agree or disagree that ... "I feel that I get the refreshment breaks I need"

Is that agree/disagree a lot or a little

- Agree a lot    78.1
- Agree a little    2
- Disagree a little    3
- Disagree a lot    4
- Don't know    5

Q.64.
-------

**Q.64.**    And do you agree or disagree that ... "There are times in the middle of a job when I wish the lockout was shorter"

Is that agree/disagree a lot or a little

- Agree a lot    79.1
- Agree a little    2
- Disagree a little    3
- Disagree a lot    4
- Don't know    5

Q.65.
-------

IF 'YES' AT Q.10.

**Q.65.** You say that you have done saturation diving outside the UK. From your own experience, would you say that UK diving safety regulations are better, worse or about the same as those in other countries?

IF 'BETTER/WORSE'. Is that much better/worse or a little better/worse?

UK much better	80.1
UK a little better	2
Both about the same	3
Other countries a little better	4
Other countries much better	5
Varies from country to country	6
UK better with the exception of Norway	7
Don't know	8

Q.66.
-------

ASK ALL

**Q.66.** So overall, how satisfied do you feel about safety conditions for saturation diving in the UK at present? Are you ...

Very satisfied	81.1
Fairly satisfied	2
Fairly dissatisfied	3
Very dissatisfied	4
Don't know	5

Q.67.
-------

**Q.67.** We've talked a lot about the current interim guidelines for diving operations and possible changes to them. Thinking overall about the interim guidelines which allow for 8 hour bell runs, do you think the guidelines are about right or should they be changed?  
(IF 'Changed' - should the bell runs be longer or shorter?)

Longer	82.1
Shorter	2
About right	3
Don't know	4

Q.68.
-------

**Q.68.** Thinking overall now about the interim guidelines which allow for 4 hour lock outs, do you think the guidelines are about right or should they be changed?  
(IF 'Changed' - should the 4 hour lock outs be longer or shorter?)

Longer	83.1
Shorter	2
About right	3
Don't know	4

Q.69.
-------

**Q.69.** And what about 6 hour lock outs, do you think the guidelines are about right for these or should they be changed?  
(IF 'Changed' - should the 6 hour lock outs be longer or shorter?)

Longer	84.1
Shorter	2
About right	3
Don't know	4

Q.70.
-------

**Q.70.** And what about diving operations in a dry welding habitat, do you think that the guidelines which allow for 8 hour bell runs in a dry welding habitat are about right or should they be changed?

(IF 'Changed' - should these bell runs be longer or shorter?)

Longer	85.1
Shorter	2
About right	3
Don't know	4

Q.71.
-------

**Q.71.** Sometimes, for technical reasons the 8 hour bell run time in a dry habitat has to be extended. In these circumstances do you think that the total bell run time becomes too long, is it still too short or is it about right?

Too long	86.1
Still too short	2
About right	3
Don't know	4

Q.72.
-------

**Q.72.** Finally, can you tell me what your age was last birthday?

<input type="text"/>	87.
Refused	88.1

**THANK YOU VERY MUCH FOR YOUR HELP**

## **SUPERVISORS**

**June 1991**

Divers: Supervisors

1 1 5 -17 0 2  
1/2/3/4/5/6/7

**Q.1.** Outcome of the call

- No reply 1.1
- Answerphone 2
- Engaged 3
- Number Unobtainable 4
- Appointment 5
- General call back 6
- Refusal 7
- No one in quota 8
- Not a residential number 9
- Respondent agrees 10
- Been contacted before 11

Q.2.

Good afternoon/evening, I'm from the British Market Research Bureau. We are doing a survey on behalf of the Department of Energy with the agreement and cooperation of the AODC and RMT amongst North Sea divers to find out their attitudes to a number of aspects of their work and especially about safety - it will only take about 15 minutes. All your answers will be strictly confidential, and your name will not be linked with anything you say

**Q.2.** I understand that you are a fully qualified saturation supervisor or superintendent ... is that correct?

- Yes - supervisor 2.1
- Yes - superintendent 2
- No 3
- Don't know 4

Q.3.

MAIN Q'AIRE  
CLOSE

IF 'YES' AT Q.2.

**Q.3.** In which year were you first appointed as a saturation diving supervisor?

- 1991 3.1
- 1990 2
- 1989 3
- 1988 4
- 1985-1987 5
- 1980-1984 6
- Before 1980 7
- Don't know 8

Q.4.

**Q.4.** Have you acted as a saturation diving supervisor on the UK continental shelf in the last 3 years, that is in 1988, 1989, or 1990?

- Yes 4.1
- No 2
- Don't know 3

Q.5.  
CLOSE

- Q.5.** For how many years were you saturation diving before you became a supervisor?
- Up to 3 years 5.1
  - More than 3 years, up to 5 years 2
  - More than 5 years, up to 7 years 3
  - More than 7 years, up to 10 years 4
  - More than 10 years 5
  - Don't know 6

Q.6.

- Q.6.** How many companies have you worked for as a saturation diver/supervisor in the UK sector in the last 3 years, that is in 1988,1989 and 1990?  
TYPE IN

			6.
Don't know			7.1

- Q.7.** Have you ever done any saturation diving or supervision outside the UK?

- Yes 8.1
- No 2
- Don't know 3

Q.8.

Q.10.

IF 'YES' AT Q.7. ASK

- Q.8.** Where else have you done saturation diving or supervision?  
MULTICODING ALLOWED

- South America / Canada / USA 9.1
- Middle East 2
- Brunei / Sarawak / South East Asia 3
- Far East 4
- India 5
- Norway 6
- Mexico 7
- Spain 8
- Holland 9
- Other

PLEASE STATE

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- Don't know 11

Q.9.

**Q.9.** And how much of your saturation diving / supervision work in the last 3 years (since 1988) has been within the UK?

READ OUT

- All 10.1
- Most of it 2
- About half 3
- Some of it 4
- Very little 5
- Don't know 6

Q.10.
-------

ASK ALL

**Q.10.** Did you ever do any hyperbaric welding in a dry habitat offshore in the UK before 1988?

- Yes 11.1
- No 2
- Don't know 3

Q.11.
-------

**Q.11.** And have you done any hyperbaric welding in a dry habitat offshore in the UK in the last 3 years, that is in 1988, 1989 or 1990?

- Yes 12.1
- No 2
- Don't know 3

Q.12.
Q.13.

IF 'YES' AT Q.11.

**Q.12.** About how many days have you worked in a dry habitat since 1988?  
PLEASE TYPE ANSWER INTO BOXES

- (Approx)  

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 13.
- Don't know 14.1

ASK ALL

**Q.13.** In this interview I will be talking just about saturation diving and we are interested in your opinions on both bell run times and bell lock out times. So, firstly, thinking about bell runs, as you know there are both 2 man and 3 man bells. Which do you normally supervise, thinking about the UK in the last 3 years?

- Only ever 2 man 15.1
- Normally 2 man 2
- Only ever 3 man 3
- Normally 3 man 4
- Both about the same 5
- Don't know 6

Q.16.
Q.14.
Q.16.
Q.14.

IF BOTH AT Q.13.

**Q.14.** Which do you think is preferable, diving in a 2 man bell or a 3 man bell?

- 2 man 16.1
- 3 man 2
- No preference 3
- Don't know 4

Q.15.
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**Q.15.** Why do you say that? PROBE

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- |     |    |    |     |     |     |     |     |     |     |     |     |     |
|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 17. | 1, | 5, | 9,  | 13, | 17, | 21, | 25, | 29, | 33, | 37, | 41, | 45, |
|     | 2, | 6, | 10, | 14, | 18, | 22, | 26, | 30, | 34, | 38, | 42, | 46, |
|     | 3, | 7, | 11, | 15, | 19, | 23, | 27, | 31, | 35, | 39, | 43, | 47, |
|     | 4, | 8, | 12, | 16, | 20, | 24, | 28, | 32, | 36, | 40, | 44, | 48, |

ASK ALL

**Q.16.** Now, thinking just about 2 man bells, can you tell me what you think the current maximum recommended time for a 2 man BELL RUN is?

HOURS	MINS	
		18.
Don't know		19.1

**Q.17.** (In fact its 8 hours). Do you think that this is too long, too short, or about right?  
(Explain if necessary: in general what do you think?)

- |                                     |      |
|-------------------------------------|------|
| Too long                            | 20.1 |
| Too short                           | 2    |
| About right                         | 3    |
| (DON'T READ OUT) Depends on the job | 4    |
| Don't know                          | 5    |

Q.18.
Q.20.

IF 'TOO LONG' OR 'TOO SHORT' AT Q.17. ASK

**Q.18.** What do you think the maximum time should be for a 2 man bell run?

HOURS	MINS	
		21.
Don't know		22.1

**Q.19.** Why do you say that?  
PROBE

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- |     |    |    |     |     |     |     |     |     |     |     |     |     |
|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 23. | 1, | 5, | 9,  | 13, | 17, | 21, | 25, | 29, | 33, | 37, | 41, | 45, |
|     | 2, | 6, | 10, | 14, | 18, | 22, | 26, | 30, | 34, | 38, | 42, | 46, |
|     | 3, | 7, | 11, | 15, | 19, | 23, | 27, | 31, | 35, | 39, | 43, | 47, |
|     | 4, | 8, | 12, | 16, | 20, | 24, | 28, | 32, | 36, | 40, | 44, | 48, |

ASK ALL

**Q.20.** Now, thinking of the LOCKOUT time from a 2 man bell. Do you know what is the maximum recommended time is that a diver can be locked out from a 2 man bell when both men lock out in turn?

HOURS	MINS	
Don't know		24. 25.1

**Q.21.** (In fact its 4 hours). Do you think that this is too long, too short, or about right when both men lock out? (Explain if necessary: in general what do you think?)

Too long	26.1
Too short	2
About right	3
(DON'T READ OUT) Depends on the job	4
Don't know	5

Q.22.
Q.24.

IF 'TOO LONG' OR 'TOO SHORT' AT Q.21. ASK

**Q.22.** What do you think the maximum lockout time should be a diver in a 2 man bell when both men lock out?

HOURS	MINS	
Don't know		27. 28.1

**Q.23.** Why do you say that?  
PROBE

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- |     |    |    |     |     |     |     |     |     |     |     |     |     |
|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 29. | 1, | 5, | 9,  | 13, | 17, | 21, | 25, | 29, | 33, | 37, | 41, | 45, |
|     | 2, | 6, | 10, | 14, | 18, | 22, | 26, | 30, | 34, | 38, | 42, | 46, |
|     | 3, | 7, | 11, | 15, | 19, | 23, | 27, | 31, | 35, | 39, | 43, | 47, |
|     | 4, | 8, | 12, | 16, | 20, | 24, | 28, | 32, | 36, | 40, | 44, | 48, |

ASK ALL

**Q.24.** Now thinking about 3 man bells, can you tell me what you think the current maximum recommended time for a 3 man bell run is?

HOURS	MINS	
Don't know		30. 31.1

**Q.25.** (In fact its 8 hours). Do you think that this is too long, too short, or about right (Explain if necessary: in general what do you think?)

- Too long 32.1
- Too short 2
- About right 3
- (DON'T READ OUT) Depends on the job 4
- Don't know 5

Q.26.
Q.28.

IF 'TOO LONG' OR 'TOO SHORT' AT Q.25. ASK

**Q.26.** What do you think the maximum time should be for a 3 man bell run?

HOURS MINS

--	--	--	--	--	--	--	--	--	--	--	--	--

33.

Don't know 34.1

**Q.27.** Why do you say that?  
PROBE

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- |     |    |    |     |     |     |     |     |     |     |     |     |     |
|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 35. | 1, | 5, | 9,  | 13, | 17, | 21, | 25, | 29, | 33, | 37, | 41, | 45, |
|     | 2, | 6, | 10, | 14, | 18, | 22, | 26, | 30, | 34, | 38, | 42, | 46, |
|     | 3, | 7, | 11, | 15, | 19, | 23, | 27, | 31, | 35, | 39, | 43, | 47, |
|     | 4, | 8, | 12, | 16, | 20, | 24, | 28, | 32, | 36, | 40, | 44, | 48, |

ASK ALL

**Q.28.** Now, thinking of the lockout time from a 3 man bell. Do you know what is the maximum recommended time a diver can be locked out from a 3 man bell when only two divers lock out and the third diver has a dry run?

HOURS MINS

--	--	--	--	--	--	--	--	--	--	--	--	--

36.

Don't know 37.1

**Q.29.** (In fact its 6 hours). Do you think that this is too long, too short, or about right (Explain if necessary: in general what do you think?)

- Too long 38.1
- Too short 2
- About right 3
- (DON'T READ OUT) Depends on the job 4
- Don't know 5

Q.30.
Q.32.

IF 'TOO LONG' OR 'TOO SHORT' AT Q.33. ASK

**Q.30.** What do you think the maximum lockout time should be for a diver in a 3 man bell when 2 divers lockout and the third diver has a dry run?

HOURS MINS

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39.

Don't know 40.1

**Q.31.** Why do you say that?  
 PROBE

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- |     |    |    |     |     |     |     |     |     |     |     |     |     |
|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 41. | 1, | 5, | 9,  | 13, | 17, | 21, | 25, | 29, | 33, | 37, | 41, | 45, |
|     | 2, | 6, | 10, | 14, | 18, | 22, | 26, | 30, | 34, | 38, | 42, | 46, |
|     | 3, | 7, | 11, | 15, | 19, | 23, | 27, | 31, | 35, | 39, | 43, | 47, |
|     | 4, | 8, | 12, | 16, | 20, | 24, | 28, | 32, | 36, | 40, | 44, | 48, |

ASK ALL

**Q.32.** Now, thinking of the lockout time from a 3 man bell. Do you know what is the maximum recommended time that a diver can be locked out from a 3 man bell when all three divers have a lockout period?

HOURS	MINS	
		42.
Don't know		43.1

**Q.33.** (In fact its 4 hours). Do you think that this is too long, too short, or about right (Explain if necessary: in general what do you think?)

- |                                     |      |
|-------------------------------------|------|
| Too long                            | 44.1 |
| Too short                           | 2    |
| About right                         | 3    |
| (DON'T READ OUT) Depends on the job | 4    |
| Don't know                          | 5    |

Q.34.
Q.36.

IF 'TOO LONG' OR 'TOO SHORT' AT Q.33. ASK

**Q.34.** What do you think the maximum lockout time should be for a diver in a 3 man bell when all three divers have a lockout period?

HOURS	MINS	
		45.
Don't know		46.1

**Q.35.** Why do you say that?  
PROBE

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47.	1,	5,	9,	13,	17,	21,	25,	29,	33,	37,	41,	45,
	2,	6,	10,	14,	18,	22,	26,	30,	34,	38,	42,	46,
	3,	7,	11,	15,	19,	23,	27,	31,	35,	39,	43,	47,
	4,	8,	12,	16,	20,	24,	28,	32,	36,	40,	44,	48,

ASK ALL

**Q.36.** As you know, on a lock out you, as the diving supervisor, may under exceptional circumstances, extend the lock out by up to 30 minutes to complete a task if all the divers agree. Have you ever extended a lock out by up to 30 minutes?

Yes	48.1	Q.37.
No	2	Q.41.
Don't know / can't remember	3	

IF 'YES' AT Q.36.

**Q.37.** Have you ever extended a 4 hour lockout period when you didn't feel that it was safe?

Yes	49.1	Q.38.
No	2	Q.39.
Don't know	3	

IF 'YES' AT Q.37.

**Q.38.** How often has this happened on a 4 hour lockout? Is it ..... (READ OUT)

Only once or twice	50.1	Q.39.
Occasionally	2	
Quite often	3	
OR Very often	4	
DO NOT READ OUT Don't know	5	

**Q.39.** Have you ever extended a 6 hour lockout period when you didn't feel that it was safe?

Yes	51.1	Q.40.
No	2	Q.41.
Don't know	3	

IF 'YES' AT Q.39.

**Q.40.** How often has this happened on a 6 hour lockout? Is it ..... (READ OUT)

Only once or twice	52.1	Q.41.
Occasionally	2	
Quite often	3	
OR Very often	4	
DO NOT READ OUT Don't know	5	

ASK ALL

**Q.41.** Now I'd like you to think about the pattern of working in a 3 man bell. One pattern of working is for 2 divers to have up to 6 hour lockouts while the third diver remains dry and is bellman for the whole bell run. In the last 3 years, that is since 1988, how many bell runs have you supervised with this pattern of working? Is it ..... (READ OUT)

- All or nearly all your bell runs 53.1
- About three quarters or more 2
- About half 3
- About a quarter 4
- Less than a quarter 5
- None 6
- Don't know 7

Q.39.
-------

**Q.42.** How safe do you think this pattern of working is, with 2 divers doing 6 hour lockouts, and the third diver staying dry as bellman? (READ OUT)

- Very safe 54.1
- Fairly safe 2
- Not very safe 3
- Not at all safe 4
- Don't know 5

Q.43.
-------

**Q.43.** Another pattern of working in a 3 man bell is for each diver to have a lockout of up to 4 hours. In this situation, a diver will be bellman for 4 hours after just having done a lockout period of 4 hours. In the last 3 years, since 1988, how many bell runs have you supervised with this pattern of working? Is it ..... (READ OUT)

- All or nearly all your bell runs 55.1
- About three quarters or more 2
- About half 3
- About a quarter 4
- Less than a quarter 5
- None 6
- Don't know 7

Q.44.
-------

**Q.44.** How safe do you think this pattern of working is, with each diver doing lockouts of up to 4 hours and one diver then acting as bellman immediately after his lockout? (READ OUT)

- Very safe 56.1
- Fairly safe 2
- Not very safe 3
- Not at all safe 4
- Don't know 5

Q.45.
-------

**Q.45.** Overall, which pattern of working in a 3 man bell would you think is preferable - 6-hour lockouts for 2 divers with one man as dry bellman for the whole run, or 4-hour lockouts for each of the 3 divers?

- 6 hour lock outs for 2 divers 57.1
- 4 hour lock outs for 3 divers 2
- No preference 3
- Don't know 4

Q.46.
-------

**Q.46.** Now I'd like you to think about a 2 man bell. One possible pattern of working with a 2 man bell is for one diver to have a lockout of up to 6 hours, while the other diver remains dry and is bellman for the whole bell run and then vice versa for the next bell run. In the last 3 years, that is since 1988, how many bell runs, if any, have you supervised with this pattern of working? Is it ..... (READ OUT)

- All or nearly all your bell runs      58.1
- About three quarters or more      2
- About half      3
- About a quarter      4
- Less than a quarter      5
- None      6
- Don't know      7

Q.47.
-------

**Q.47.** How safe do you think this pattern of working is in a 2 man bell, with the diver locking out for 6 hours, and the other diver staying dry as bellman and then vice versa? (READ OUT)

- Very safe      59.1
- Fairly safe      2
- Not very safe      3
- Not at all safe      4
- Don't know      5

Q.48.
-------

**Q.48.** Now I'd like to ask you about refreshment breaks, first of all for 6 hour lock outs. The current guidelines specify at least one refreshment break within the first 4 hours. Do you think this is about right, or do you think there should be more or fewer refreshment breaks?  
(IF NECESSARY: Assuming the work is not particular tiring)

- About right      60.1
- Should have more      2
- Should have fewer      3
- Don't know      4

Q.49.
-------

**Q.49.** With a 4 hour lockout, have you ever felt that the divers have needed a refreshment break?

- Yes      61.1
- No      2
- Don't know      3

Q.50.
Q.51.

IF 'YES' AT Q.49.

**Q.50.** How often has this happened? Is it ..... (READ OUT)

- Only once or twice      62.1
- Occasionally      2
- Quite often      3
- OR Very often      4
- DO NOT READ OUT Don't know      5

Q.51.
-------

ASK ALL

**Q.51.** In your experience, would you say that you, as a supervisor, agree to refreshment breaks when they are needed ..... READ OUT?

- All the time or nearly all the time 63.1
- Most of the time 2
- Sometimes 3
- Rarely 4
- OR Never 5
- DO NOT READ OUT Don't know 6

Q.52.
-------

**Q.52.** Now I am going to read out to you some statements about safety at work for divers. For each one I read out, please tell me whether you agree or disagree with it. So, do you agree or disagree that "The guidelines need to be more flexible"? Is that agree/disagree a lot or a little?

- Agree a lot 64.1
- Agree a little 2
- Disagree a little 3
- Disagree a lot 4
- Don't know 5

Q.53.
-------

**Q.53.** And do you agree or disagree that ... "By the end of a 6 hour lockout divers are often exhausted"? Is that agree/disagree a lot or a little

- Agree a lot 65.1
- Agree a little 2
- Disagree a little 3
- Disagree a lot 4
- Don't know 5

Q.54.
-------

**Q.56.** And do you agree or disagree that ... "I sometimes feel that the bellman is too tired to be of much use"? Is that agree/disagree a lot or a little

- Agree a lot 66.1
- Agree a little 2
- Disagree a little 3
- Disagree a lot 4
- Don't know 5

Q.55.
-------

**Q.55.** And do you agree or disagree that ... "I feel that divers get the refreshment breaks they need"? Is that agree/disagree a lot or a little

- Agree a lot 67.1
- Agree a little 2
- Disagree a little 3
- Disagree a lot 4
- Don't know 5

Q.56.
-------

IF 'YES' AT Q.7.

- Q.56.** You say that you have done saturation diving / supervision outside the UK. From your own experience, would you say that UK diving safety regulations are better, worse or about the same as those in other countries?

IF 'BETTER/WORSE'. Is that much better/worse or a little better/worse?

UK much better	68.1
UK a little better	2
Both about the same	3
Other countries a little better	4
Other countries much better	5
Varies from country to country	6
UK better with the exception of Norway	7
Don't know	8

Q.57.

ASK ALL

- Q.57.** So overall, how satisfied do you feel about safety conditions for saturation diving in the UK at present? Are you ...

Very satisfied	69.1
Fairly satisfied	2
Fairly dissatisfied	3
Very dissatisfied	4
Don't know	5

Q.58.

- Q.58.** We've talked a lot about the current interim guidelines for diving operations and possible changes to them. Thinking overall about the interim guidelines which allow for 8 hour bell runs, do you think the guidelines are about right or should they be changed?  
(IF 'Changed' - should the bell runs be longer or shorter?)

Longer	70.1
Shorter	2
About right	3
Don't know	4

Q.59.

- Q.59.** Thinking overall now about the interim guidelines which allow for 4 hour lock outs, do you think the guidelines are about right or should they be changed?  
(IF 'Changed' - should the 4 hour lock outs be longer or shorter?)

Longer	71.1
Shorter	2
About right	3
Don't know	4

Q.60.

- Q.60.** And what about 6 hour lock outs, do you think the guidelines are about right for these or should they be changed?  
(IF 'Changed' - should the 6 hour lock outs be longer or shorter?)

Longer	72.1
Shorter	2
About right	3
Don't know	4

Q.61.

**Q.61.** And what about diving operations in a dry welding habitat, do you think that the guidelines which allow for 8 hour bell runs in a dry welding habitat are about right or should they be changed?  
(IF 'Changed' - should these bell runs be longer or shorter?)

Longer	73.1
Shorter	2
About right	3
Don't know	4

Q.62.
-------

**Q.62.** Sometimes, for technical reasons the 8 hour bell run time in a dry habitat has to be extended. In these circumstances do you think that the total bell run time becomes too long, is it still too short or is it about right?

Too long	74.1
Still too short	2
About right	3
Don't know	4

Q.63.
-------

**Q.63.** As a supervisor, have you ever felt under pressure to ask divers to do too much within a bell run?

Yes	75.1
No	2
Don't know	3

Q.64.
Q.65.

IF 'YES' AT Q.63.

**Q.64.** How often would you say that you have felt under pressure to ask divers to do too much within a bell run?  
Would it be ..... (READ OUT)

Only once or twice	76.1
A few times	2
Fairly often	3
Very often	4
Don't know	5

Q.65.
-------

ASK ALL

**Q.65.** As a supervisor, have you ever felt under pressure to ask divers to do too much within a lock out?

Yes	77.1
No	2
Don't know	3

Q.66.
Q.67.

IF 'YES' AT Q.65.

**Q.66.** How often would you say that you have felt under pressure to ask divers to do too much within a lock out?  
Would it be ... (READ OUT)

Only once or twice	78.1
A few times	2
Fairly often	3
Very often	4
Don't know	5

Q.67.
-------

ASK ALL

- Q.67.** Thinking about the last 3 years, that is since 1988, have you ever authorised a bell run in UK waters of more than 8 hours other than for habitats?
- |  |            |      |
|--|------------|------|
|  | Yes        | 79.1 |
|  | No         | 2    |
|  | Don't know | 3    |

Q.68.
Q.70.

IF 'YES' AT Q.67.

- Q.68.** What is the longest bell run you have authorised in UK waters in the last 3 years?  
PLEASE TYPE ANSWER INTO BOXES

	HOURS	MINS
		80.
Don't know		81.1

- Q.69.** About how often have you authorised bell runs of over 8 hours in UK waters?  
Would it be ... (READ OUT)

- |                    |      |
|--------------------|------|
| Only once or twice | 82.1 |
| A few times        | 2    |
| Fairly often       | 3    |
| Very often         | 4    |
| Don't know         | 5    |

Q.70.
-------

ASK ALL

- Q.70.** Have you ever authorised a planned lock out time in water from a two man bell longer than 4 hours, apart from a 30 minute extension to complete a task?

- |  |            |      |
|--|------------|------|
|  | Yes        | 83.1 |
|  | No         | 2    |
|  | Don't know | 3    |

Q.71.
Q.73.

IF 'YES' AT Q.70.

- Q.71.** What is the longest planned lock out time from a two man bell you have authorised?  
PLEASE TYPE ANSWER INTO BOXES

	HOURS	MINS
		84.
Don't know		85.1

- Q.72.** About how often have you authorised planned lock out times from a two man bell of more than 4 hours?  
Would it be ... (READ OUT)

- |                    |      |
|--------------------|------|
| Only once or twice | 86.1 |
| A few times        | 2    |
| Fairly often       | 3    |
| Very often         | 4    |
| Don't know         | 5    |

Q.73.
-------

ASK ALL

- Q.73.** Have you authorised a planned lock out time in water from a three man bell longer than 6 hours, apart from a 30 minute extension to complete a task?

- |  |            |      |
|--|------------|------|
|  | Yes        | 87.1 |
|  | No         | 2    |
|  | Don't know | 3    |

Q.74.
Q.76.

IF 'YES' AT Q.74.

**Q.74.**    What is the longest planned lock out time from a three man bell you have authorised?  
PLEASE TYPE ANSWER INTO BOXES

HOURS	MINS	88.
Don't know		89.1

**Q.75.**    About how often have you authorised planned lock out times from a three man bell of more than 6 hours?  
 Would it be ... (READ OUT)

- |                    |      |
|--------------------|------|
| Only once or twice | 90.1 |
| A few times        | 2    |
| Fairly often       | 3    |
| Very often         | 4    |
| Don't know         | 5    |

Q.76.

ASK ALL

**Q.76.**    Finally, can you tell me what your age was last birthday?

		91.
Refused		92.1

**THANK YOU VERY MUCH FOR YOUR HELP**