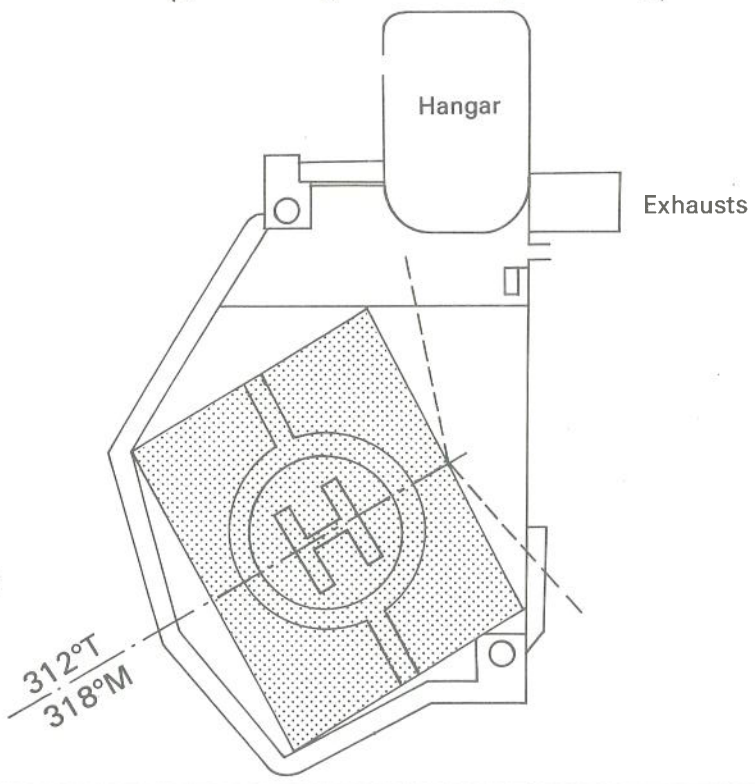
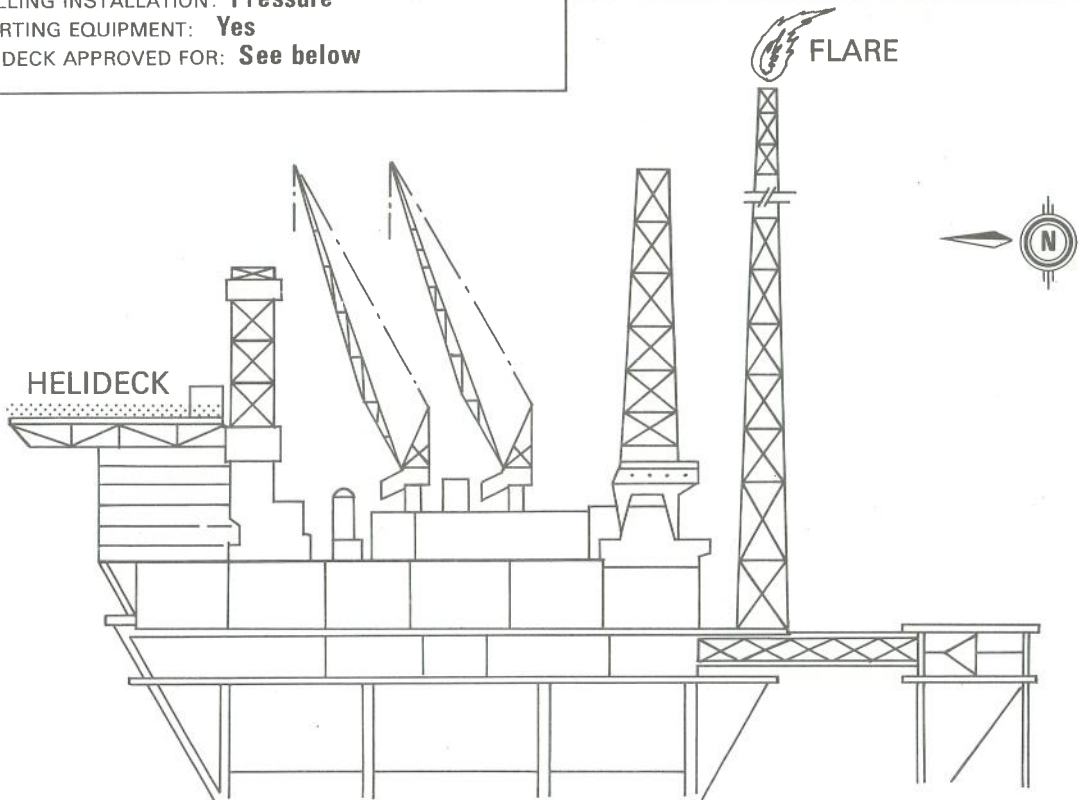
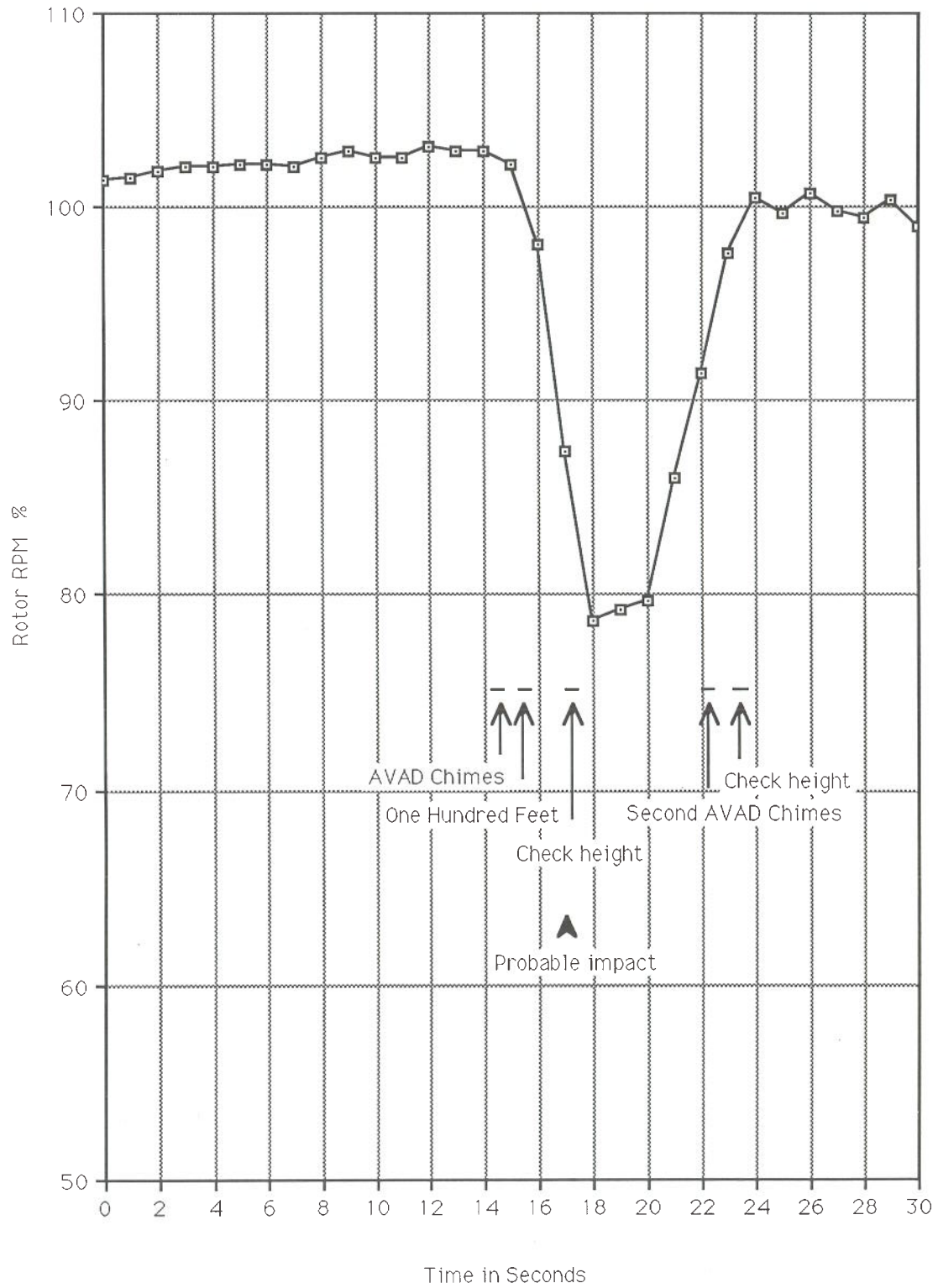


HELIDECK ELEV 215	Var 6° W	Position N5629.6 E00209.3	<b>FULMAR A FIXED PLATFORM</b>	
----------------------	-------------	---------------------------------	------------------------------------	--

HEIGHT OF INSTALLATIONS: <b>444</b> HIGHEST OBSTACLE WITHIN 5NM: <b>Rig</b> FUELLING INSTALLATION: <b>Pressure</b> STARTING EQUIPMENT: <b>Yes</b> HELIDECK APPROVED FOR: <b>See below</b>	VHF 122.05	NDB 'FM' 386	14 Apr 86
---	---------------	--------------------	-----------



- |                          |  |
|--------------------------|--|
| 1. Helideck 22.4mx27.17m | 1. Helideck approved for bi-directional Chinook operations; unrestricted up to S61.<br><br>2. Possibility of turbulence over helideck sector 100° – 170° in light wind conditions. |
|--------------------------|--|



The Cockpit Voice Recorder Rotor Speed and Audio Analysis

## THE REPORT OF THE INSTITUTE OF AVIATION MEDICINE

## 1. The psychological examination

At a point in the commander's evidence, when describing his double vision, he stated that "There was a clear gap between the two platforms and I didn't know which one to go for". It may reasonably be supposed that a pilot who begins to see double, but who remains capable of rational thought, would realise that something was amiss and either hand over control to the other pilot or take an obviously safe course of action, such as abandoning the approach and initiating a climb. That he should have considered at the time "which one to go for" is odd, but that he should have stated this in evidence a day later, without qualification, suggests that his judgement was still impaired in failing to appreciate the strangeness of what he was saying.

This, together with all the other evidence presented, strongly indicates that the commander experienced some form of behavioural inhibition, and it was this which prevented him from exercising control of the aircraft. There are two possible explanations for this:

(a) *Acute over-arousal.* In this hypothesis it is suggested that the commander may have approached the rig rather faster than usual, and was required to lower the collective lever significantly more than that normal in a standard approach. When the aircraft speed had reduced to an appropriate level, he failed to appreciate how much power was needed and therefore it rapidly entered a descent. Since he was not expecting the aircraft to behave in this way, he exhibited the same characteristics of failure to organise a coherent response (ie immobility), as has been exhibited by others in unexpected hazardous situations.

(b) *Transient incapacitation.* This hypothesis suggests that, just after the aircraft had slowed, the commander experienced a temporary incapacitation which both prevented him from controlling the height of the aircraft, and also prevented him from perceiving that it was descending. Thus the immobility of the handling pilot is postulated here as the root cause of the incident, whereas in (a), his failure to respond is suggested to be a response to circumstances.

It is felt that the first form of explanation is unlikely to be accurate for two main reasons. Firstly, it does not address the double vision, which the commander describes experiencing at the beginning of the incident.

Secondly, it requires that he failed to respond to the compelling visual stimulus provided by the lights of the platform as the aircraft descended. The flight trial demonstrated that visual judgement of height, close to the rig, is relatively straightforward. The sight of passing downwards from being aligned with one storey to the next lower one provides a strong cue to sink. The association between an undesired sink and the need for application of power would not be new to the commander, and would be a response so fundamental to any helicopter pilot as to be completely automatic. 'Freezing' may well disrupt rational thought and newly acquired skills, but the freezing of an experienced pilot in such familiar surroundings is difficult to accept.

The second form of explanation, that his behaviour was disturbed by some internal event, is considered more likely. The double vision can be regarded as symptomatic of a more generalised failure of the central nervous system (CNS) which also produced the apparent suppression of perception, control, and any memory for the events between the onset of double vision and the recovery actions. The problem with the acceptance of this explanation is that if such a CNS failure is regarded as a random event, then it is curious that it struck at the worst possible moment in the trip, when the aircraft was not stabilised in either the cruise or the hover. It also appears rather strange that, when alerted to the existence of the problem by the co-pilot, he was able to effect a profound change from an apparently dissociated, catatonic, fugue-like state in which he completely failed to respond to a situation of patently disastrous potential, to fairly normal behaviour in which he was able to regain control and to land.

## **2. Fatigue**

The commander's daily schedule beginning at 0540 hrs, and ending at 2200 hrs, is undoubtedly tiring, but the commander had no constraint on his bed time, and there is no real suggestion that he was sleep deprived. Shuttle flying may equally be argued to be tiring, but the flying during the preceding week was split into manageable work periods, and could be argued more persuasively to have honed his expertise rather than eroded his competence. The split-duties, in this case, were reasonably contained within the hours of a normal working day and did not occur at especially low points in the circadian rhythm. A recent study of North Sea helicopter pilots provides considerable support for these points.

The commander had been taking exercise in the gymnasium of the platform during the week, and had had a particularly vigorous session during the afternoon preceding the incident. Physical fitness is if anything supposed to improve stress resistance, and it is difficult to postulate any mechanism which would connect the commander's afternoon exercise with the events of the incident.

Notwithstanding these observations, flying helicopters in the North Sea is not the most congenial form of flying and living on a platform is undoubtedly tiresome if not tiring. Furthermore, the commander appears not to have been at his best for a day or two before the incident, as evinced by his loss of several games of mental and physical skill, pastimes at which he had previously excelled.

### **3. Summary**

For the reasons discussed, it is apparent that, although the commander evidently suffered a temporary incapacitation, there is no firm evidence which might suggest the reason for it.